

THE AUTOMOBILE

Harrisburg Club Runs Fourth Annual Event



HARRISBURG, with its fourth annual roadability run, made a dashing start on the morning of May 10. It is for three days. The itinerary of the run, starting from Harrisburg, is Philadelphia, Atlantic City, Wildwood,

who are responsible for the run made every necessary preparation and the reward is just within their grasp; there is every indication that the end to-night will be fine.

Officers and Committees

W. O. Hickok, 3d, president; F. H. Bomgardner, 1st vice-president; David G. Bowman, 2d vice-president; Dr. John Oen-



Scene at the Start, Harrisburg Reliability Run

and return to the place from whence they came. The run is under the auspices of the Motor Club of Harrisburg, is under the rules (for 1910), and is sanctioned by the "Contest Board," of which S. M. Butler is chairman. The officials of the Harrisburg club

Right, W. R. Douglas, Referee
Left, Gas Tank Wagon

slager, 3d vice-president; John C. Nissley, treasurer; J. Clyde Myton, secretary.

Board of Governors

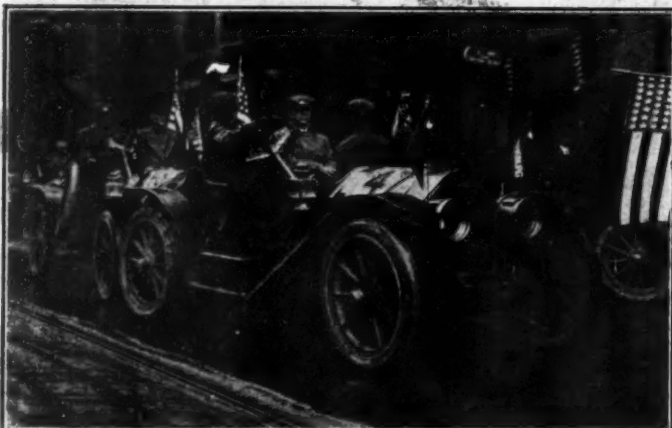
James McCormick, Jr., Dr. C. C. Cocklin, Frank A. Stees, C. Cumbler, O. C. Robertson, J. C. Aldrich, J. Sidney Sible,



Maxwell Entry, the First Car Into Philadelphia



Checking In the Franklin Car at Philadelphia



Greenwood Driving the Marion Entry in Harrisburg Run



Enger Car, a Newcomer, in the Quaker City

Frank J. Brady and H. C. Wright.

Chairmen of Committees

W. G. Starry, membership; I. W. Dill, house; J. Clyde Myton, contests, tours, etc.; E. K. Frazer, law and ordinances; Robert McCormick, auditing; Vance C. McCormick, roads.

Official Cars

Pathfinder—The American, Stoye-Vogel Co., Philadelphia, Pa.; Re-Survey Car—Buick, Sheriff E. Johnson, Atlantic Co., N. J.; Referee—Premier, The Motor Company, Philadelphia, Pa.; Tire Car—Meely, the Tire Man, Philadelphia, Pa.; Pilot—Kline Kar, C. C. Cumbler; Press Car—Chalmers, Harvey Ringler, Philadelphia, Packard Monument Motor Car Co., Philadelphia, Pa.

Race Officials

Referee—W. R. Douglas, of Harrisburg; Technical Chairman—David Beecroft, President Chicago Motor Club; A. A. A. Representative—David Beecroft; Chief Observer—J. Clyde Myton of Harrisburg; Finish Judge—B. F. Blough of Harrisburg; Publicity Agent—Geo. Proud.

Contest Committee

J. Clyde Myton, chairman; W. R. Douglas, secretary; R. H. Johnston, E. G. Irvin, C. C. Cumbler, F. A. Stees, B. F. Blough, G. G. McFarland, W. F. Graupner, C. C. Crispin, Andrew Redmond, I. W. Dill, Robert Morton.

The distance from Harrisburg to Atlantic City is 168 miles, which represented the first day's work, and the arrival there was in due season, heralded by all the motorists of that popular seaside resort. It was a heavy day, from the weather point of view; rain fell for a considerable portion of the time, but despite this rather unpleasant phase of the situation, the run was hugely enjoyed, and it was to the credit of the contesting automobiles that there were no serious incidents to mar the day.

ATLANTIC CITY, May 9—Forty automobiles made the journey from Harrisburg, and while many of them were entered by maker's agencies, the fact remains that there was a goodly sprinkling of owners in the merry throng. There were a thousand incidents which happened along the way to upset the monotony of the weather, and citizens along the line were as much interested as the contestants themselves, if appearances count for anything.

In Pennsylvania the roads were extremely good, excepting for a stretch of bad going between Reading and Pottstown. This part of the way was in mighty contrast with the "pikes" in Pennsylvania and New Jersey; they were the wonder and the source of continual admiration on the part of such contestants as were strangers to this state. Despite the rain and the general inclemency of weather, the roads in New Jersey were hard and dry; the rain tumbled down and rolled off and away through provided channels as water from a duck's back; the automobiles passed along and on just as if the sun was shining all the time, and the autoists in their rain togs enjoyed every moment of it with an added interest for every foot.

The story of cars dropping out of the perfect score ranks in the first day was looked for, and in the maker's class four had to surrender this coveted honor for one day. On the second day's run six more were disabled in one manner or another, so that by the end of the second day only eleven of the original twenty-one remained with clean scores. On the opening day the cars made the pace as fast as possible, and some suffered because of this. The Mitchell was given fifteen points for having to take on gasoline and water outside of the noon and night controls. This car withdrew on the second day, but will complete the circuit as a non-contestant. One of the Kline Kars, driven by Sieg, ran out of gasoline a short distance out of Norristown and received 27 points. The driver, A. D. Rea, had to go some distance to secure gasoline, and was penalized for the filling and also for the time the car was late in reaching its controls.

On the second day more penalties were added. The Mitchell six which received some penalties on the opening day was withdrawn. The Regal received six points for carbureter adjustment. The Kline Kar, driven by McCulla, was penalized three points for adding oil between noon and night controls. Nine points were given the Enger car for tightening nuts that worked loose on the gear set. The Pullman, driven by Ickes, received fifteen points for putting on a new fan belt. Herb Bitner, driving a Pullman, was given one point for carbureter adjustment.

To date the penalties have been more for adjustments than for defects of construction, there being a big loss in points through dirty gasoline. It is expected that to-morrow's run of nearly two hundred miles will add to the number of cars that have been penalized, so that by the time all cars have taken the final outdoor test and technical inspection there will be few of the present eleven perfect scores remaining. Compared with past seasons, it is very remarkable how few of the cars have lost points through broken springs, frames or wheels, which is to an extent accounted for by the smooth roads.

The list of private owners competing is:

Maxwell, H. C. Wright; Mitchell, J. W. Shaffer; Maxwell, D. G. Bowman; Buick, E. K. Frazer; Ford six, W. G. Starry; Maxwell, F. H. Bomgardner; Cadillac, J. E. Dare; Buick, M. H. Baker; Kline Kar, M. E. Brightbill; Kline Kar, M. B. Cumbler; Buick, Donald McCaskey; Cadillac, W. H. Riddle; Maxwell, S. F. Metzger; Rambler, J. A. W. Brubaker; E. M. F., R. H. Forney; Pullman, T. O'Connor; Franklin, Geo. Karlavan; Pullman, J. L. L. Kuhn.

In this amateur party are passengers in most of the cars, and they all run on a 17-mile schedule in Pennsylvania and a 20-mile pace in New Jersey. They start each morning immediately after the makers' cars have been checked out, and are required to check in at all of the checking stations.

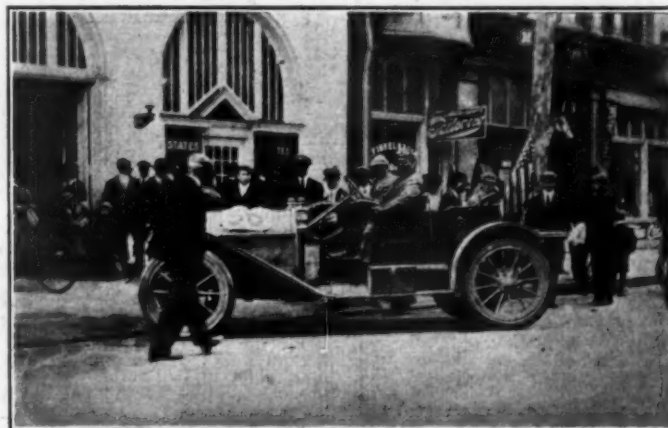
WILDWOOD, N. J., May 10—The second day of the three-day fourth annual tour of the Harrisburg Motor club ended here to-night, fine weather having followed the tourists except for a few hours after the start from Harrisburg Monday morning. It is rarely if ever there has been in America a tour by a local club which has created more interest throughout the territory traversed than the present one. This widespread interest is due primarily to the excellent publicity campaign throughout the territory covered by the run and also because of the local interest worked up in the different towns passed through by the promoter. In all twenty prizes are offered, two special prizes and eighteen trophies and of these eighteen trophies four were donated by the city of Bridgeton, three by the city of Millville, two by the town of Salem, six by Reading and one by Wildwood. These trophies, as well as the two given by Harrisburg have stirred up widespread interest. Another factor in stimulating interest in the run is the big list of private owners or amateurs as they might be called. There are 18 amateur or private owners in the run and 21 cars entered by manufacturers so that this field together with official cars makes a grand total of forty-nine cars or more than were in the Glidden tour of last year. This big entry list, which is representative of a goodly number of cars, taken in connection with the miles of roads that have been dragged and specially prepared for the tour, is conclusive proof that the Harrisburg club has the co-operation of the district.

Score for the First Two Days of Run.

		Monday.	Tuesday.
Kline Kar	J. A. Kline	0	0
Kline Kar	R. L. Morton	0	0
Kline Kar	C. V. Fairman	0	0
Kline Kar	S. Cole	0	0
Mitchell	C. F. Snyder	15	Withdrawn
Regal	F. Hosmer	0	0
Franklin	J. Burns	0	0
Pullman	H. Welker	0	0
Pullman	H. P. Hardesty	4	0
Pullman	N. Gallatin	0	0
Pullman	H. Bitner	0	1
Inter-state	W. W. Vandergrift	0	0
Warren-Detroit	Tom Berger	0	0
Columbia	E. Yeager	19	0
Enger	H. L. Brownback	0	9
Marion	E. Greenwood	0	0
Overland	C. Greenwood	0	12
Maxwell	A. D. Rea	0	0
Kline Kar	William McCulla	27	3
Kline Kar	W. P. Seig	0	16
Pullman	G. Ickes	0	



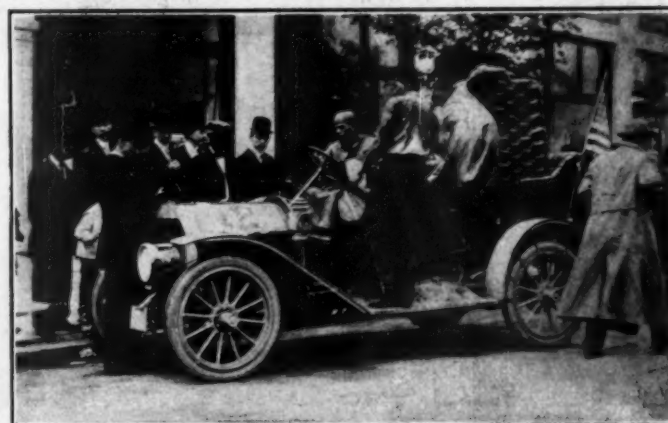
Premier Car, Which Carried the Referee and Starter



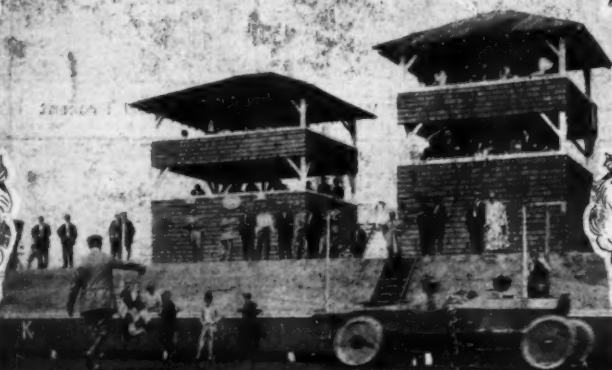
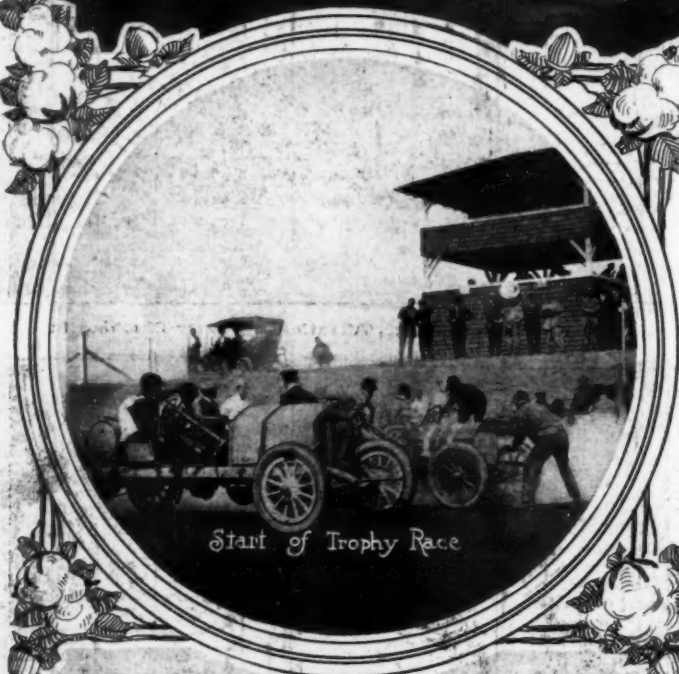
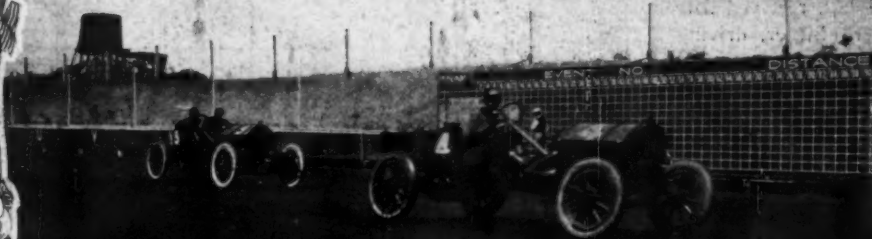
Entering States Garage, Atlantic City, After Checking In



Pullman Entry, Welker Driving, Reported Present



Regal Car Filling with Oil and Gas at Philadelphia



Atlanta's Epochal Sp

ATLANTA, May 7.—The three-day race-meet which ended here to-night, although not a success from the viewpoint of number of entries or attendance, was, nevertheless, most interesting, as many of the races were closely contested and not any car had a certainty of winning everything in its class. The whole attendance on the three days did not total over 20,000; whereas the grand stand and bleachers will accommodate over double that number. In all fourteen cars of different makes competed in the program, the speed merchants being the Marmion six with cylinders 4½ by 5 inches, the Fiat six with cylinders 130 by 190 millimeters and with double-intake and exhaust valves, and the American roadster with cylinders 5¼ bore and 5½-inch stroke.

In the meet only one record was broken, namely, the 20-mile event stock chassis, in the 451-600 cubic inch class. De Palma driving a Fiat 60 with cylinders 1140 by 130 millimeters, clipped nearly 2 seconds off the mark.

In many of the other races the times made were very close to the old records, but the rough condition of the track made it almost impossible to equal the old marks.

The bars entered in the various events were as follows:

	Bore	Stroke	No. Cyls.	Piston Dis.	Weight
American	5%	5½	4	571.3	2,880
Buick	3¾	3¾	4	....	1,404
Cole	4	4	4	201.1	1,728
E-M-F	4	4½	4	226.2	1,568
Fiat	140	130	4	....	2,748
Fiat	130	190	4	....	....
Firestone	4	4	4	201.1	1,620
Knox	5	4¾	4	373.	2,398
Marmon	4½	4½	4	286.3	2,208
Marmon	4½	5	4	318.1	2,254
Marmon	4½	5	6	477.1	....
National	5	5 11-16	4	....	2,628
S. P. O.	110	140	4	....	2,000
Allen-Kingston	5½	6	4	....	....

SUMMARIES OF THE RESULTS

MAY 5.

Event 1—Twenty-mile stock chassis, 451-600 cubic inches:—

	Miles									
	2	4	6	8	10	12	14	16	18	20
Flat 60....	1:42	3:11	4:47	6:22	7:56	9:30	11:07	12:43	14:20	15:57:41
Nat'l 40....	1:49	3:26	5:04	6:40	8:16	9:53	11:28	13:04	14:40	16:16:08
American..	1:42	3:11	4:47	6:22	8:10	9:42	11:14	12:46	out	
Nat'l 40....	1:49	3:26 out								



Kincaid, Aitken - Nationals

Spring Meet Ends

Event 2—Ten-mile stock chassis, 161-230 cubic inches:—

	2-mile	4-mile	6-mile	8-mile	10-mile
Cole	2:12	4:11	6:08	8:05	10:04:89
Buick	2:13	4:13	6:13	8:13	10:15:15
E-M-F	2:20	4:25	6:29	8:31	10:31:76

Event 3—Matched amateur, 10 miles:—

	2-mile	4-mile	6-mile	8-mile	10-mile
Fiat 60 (Rutherford).....	1:57	3:42	5:29	8:12	9:53:03
National 40 (Stoddard).....	2:00	3:46	5:31	7:16	9:04:35

Event 4—Ten-mile free-for-all:—

	2-mile	4-mile	6-mile	8-mile	10-mile
Fiat 60	1:40	3:12	4:45	6:20	7:55:71
Marmon Six	1:43	3:12	4:40	6:10	7:43:47
National	1:47	3:22	4:56	6:30	8:06:06

Event 5—Match race, 10 miles handicap:—

	2-mile	4-mile	6-mile	8-mile	10-mile
Fiat 60 (Asa Candler, Jr.).....	1:32	1:33	1:33	1:32	1:44:76
National 40 (Stoddard), one min. handicap	2:02	1:47	1:47	1:47	1:46:12

MAY 6.

Event 1—One-mile time trials:—

Fiat 90 (De Palma).....	40.33 seconds
Marmon Six (Harroun).....	41.19 "
Christie (Christie).....	42.79 "
American (Lytle).....	43.19 "

Event 2—Twelve-mile free-for-all:—

	2-mile	4-mile	6-mile	8-mile	10-mile	12-mile
Marmon Six	1:41	3:08	4:30	6:07	7:33	8:59:15
American	1:42	3:09	4:37	6:06	7:34	9:02:48
Fiat 90	1:39	3:08	4:37	6:08	7:38	9:20:58

Event 3—Ten-mile stock chassis, 301-450 cubic inches:—

	2-mile	4-mile	6-mile	8-mile	10-mile
National (Aitken).....	1:49	3:26	5:04	6:41	8:18:11
Marmon (Harroun).....	1:55	3:37	5:20	7:03	8:44:83
S. P. O., Strang.....	2:11	4:08	6:05	8:02	9:58:81

Event 4—Ten-mile amateur handicap:—

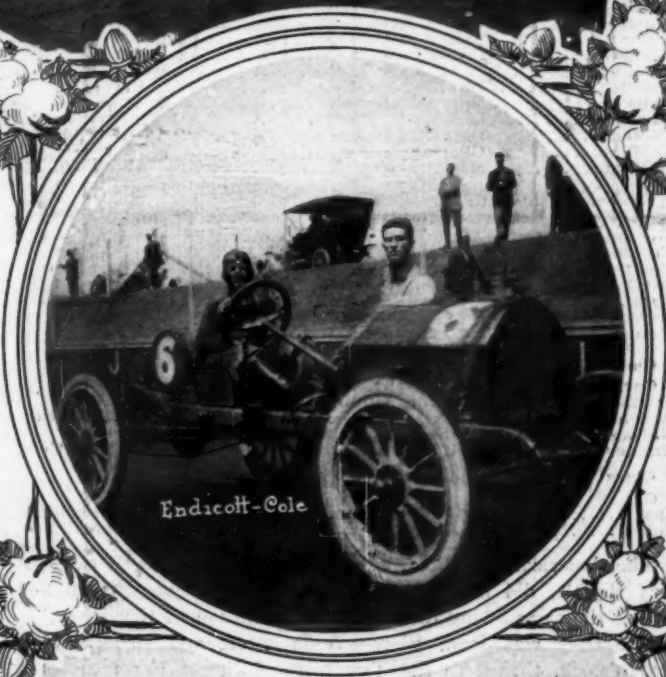
	Actual running time
S. P. O. (1:30 handicap), Woodside (won).....	9:56:32 (*8:26:32)
National, Stoddard.....	9:17:76
*Woodside's official time.	

Event 5—Sixty-mile stock chassis, 161-230 cubic inches:—

	10-mile	20-mile	30-mile	40-mile	50-mile	60-mile
Cole	10:10	20:43	30:49	40:49	50:37	60:28:46
E-M-F	10:45	21:04	31:37	42:10	52:36	62:58:91
Firestone	13:09	26:31	37:50	48:49	59:53	*running

*In 52nd mile at finish, 62:12:53.

(Continued on page 901)



Endicott-Cole



De Palma Lytle-American

Good Start for Around New Jersey Run

UNDER weather conditions that could hardly have been improved upon, the Around New Jersey Reliability Run, under the auspices of the Motor Contest Association, started on schedule time Tuesday morning with thirty-one cars on the line. The route, which was to Atlantic City and return, 157.9 miles on the out-trip and 155.1 on the return, was arranged over a variety of roads to test the touring efficiency of the cars. The roads were in excellent shape and there was nothing to mar the comfort of the drivers.

The starters included:

Class 1A—\$800 and under.		
Car.	Entrant.	Driver.
Hupmobile.....	F. L. C. Martin Auto Co.....	Elmer D. Cutting
Hupmobile.....	F. L. C. Martin Auto Co.....	R. E. Gillam

Class 3A—\$1,201 to \$1,600.		
Car.	Entrant.	Driver.
Cole "30".....	Colt-Stratton Co.....	F. Warmington
Regal.....	Regal-Detroit Auto Co.....	W. H. Bowers
Overland.....	Essex Overland Co.....	George L. Riess
Maxwell.....	L. M. Bradley.....	L. M. Bradley
Buick.....	Buick Motor Co.....	W. C. Davenport
Maxwell.....	J. W. Mason.....	Charles Schaffer

Class 4A—\$1,600 to \$2,000.		
Car.	Entrant.	Driver.
Pierce-Racine.....	G. M. Merrill.....	Lewis Strang
Auburn.....	LaDue & Carmer.....	Herbert F. Earle
Franklin.....	Franklin Auto Co.....	Paul Harvey
Chalmers.....	C. H. Page & Co.....	Joseph Bell
Koehler.....	Dr. Alex Dallas.....	J. J. Bryer
Buick.....	Buick Motor Co.....	Paul Hines
Marion.....	Charles E. Riess.....	W. F. Bradley
Cadillac.....	Detroit-Cadillac Co.....	N. L. Lichtenberg
Cadillac.....	Charles M. Welsh.....	L. R. Burne
Midland.....	Midland New York Co.....	Leo Anderson

Class 5A—\$2,001 to \$3,000.		
Car.	Entrant.	Driver.
Stoddard-Dayton.....	Atlantic Motor Car Co.....	R. Newton
National.....	Poertner Motor Car Co.....	W. C. Poertner
Croton-Keeton.....	Croton-Keeton M. C. Co.....	O. E. Bernhard
Mitchell.....	Mitchell Motor Car Co.....	O. R. Delamater
Mora.....	Mora Motor Car Co.....	Charles Hinman
Mercer.....	Floy & Clark.....	H. S. Clark
Mercer.....	Added Starter.....	Joe Trehou

Class 6A—\$3,001 to \$4,000.		
Car.	Entrant.	Driver.
Franklin.....	Franklin Auto Co.....	Charles F. Fox
Welch-Detroit.....	Buick Motor Co.....	Robert M. Flagg
Matheson.....	Matheson Auto Co.....	Nell Whalen
Haynes.....	Walter Shuttleworth.....	W. Shuttleworth

Class 7A—\$4,001 and over.		
Car.	Entrant.	Driver.
Zust.....	T. J. Gerehart.....	Joseph Kingsland
Zust.....	American Zust Motor Co.....	V. P. Pisani

The American and Stearns entries and one Maxwell car that was eligible, did not start and the Glide car was disqualified before the start owing to the lack of condition of the driver.

The start was from Fifty-seventh street and Broadway at 7.30 o'clock, thence to the Twenty-third Street Ferry and the public square in Jersey City, where the cars were sent away on their course.

The following is a list of the officials who had charge of the run: A. H. Whiting, referee; J. B. Ireland, pacemaker; Raymond Beck, pilot; J. M. Carples, chief observer; A. N. Jervis and E. F. Korbel, checkers, and A. L. McMurtry, Edward Johnson and C. H. Martin, technical committee. W. J. Morgan, president of the Motor Contest Association, was there.

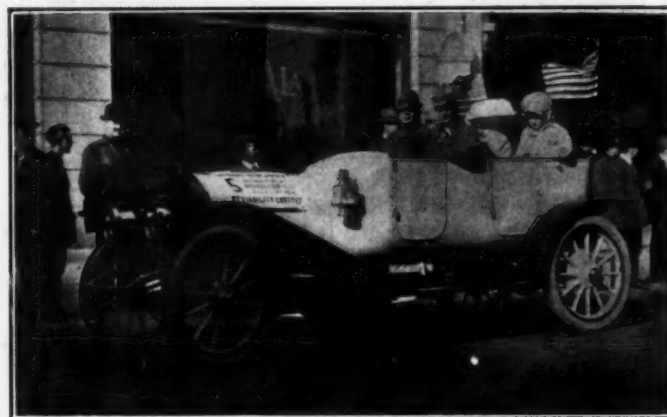
Headed by the Franklin truck, which carried the baggage of the participants in the tour, the column reached Lakewood, N. J., Tuesday noon. In the afternoon the tourists proceeded to Atlantic City which was reached without extraordinary incident. Thirty out of the 31 starters arrived at the night control. Wednesday morning the return trip was started and shortly after 4:30 o'clock the contestants began to arrive in Jersey City.

The same excellent checking arrangements were in force at the finish as had obtained at the start, and with a minimum of confusion the wearied drivers shot their cars over the line.

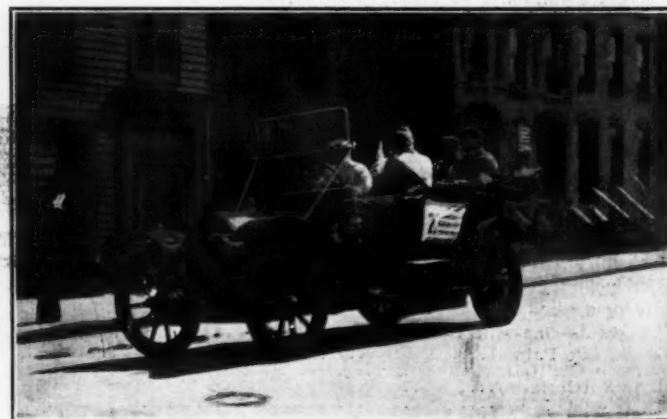
The last leg of the run was over roads not quite up to the standard of Jersey highways and several of the contestants were covered with dust as the cars finished. The winners in each of the classes will be awarded gold medals; the seconds, silver, and those who finish third will get bronze decorations.



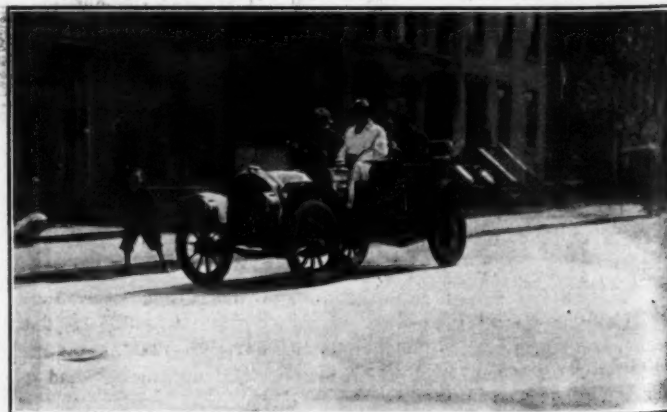
How the Cars Looked When Lined Up in Newark



New National Torpedo Body Attracted Much Attention



Matheson Silent Six, Niel Whalen at the Wheel



Mora Light Four-Cylinder, Driven by Hinman



THERE was a time—and not so long ago either—when automobiling in New Jersey included a number of extraneous factors and angles that should have no place in the pleasure of touring. It was a notorious fact that the automobile owner who contemplated a tour always found it convenient to carry a roll of \$2-bills, with which to smooth out the tangles arising from over-officiousness and over-zealousness on the part of certain petty peace officers. "Jersey Justice" had a "black-eye" and the decoration was deserved.

If the New Jersey Automobile and Motor Club never did anything else save correct that unjust, annoying and almost in-

tolerable condition it performed a service that entitles it to a warm place in the hearts of motordom. It did a great work in this matter and it did it so thoroughly that the necessity for the roll of \$2-bills has been obviated and a tourist can enjoy the magnificent roads and scenery of New Jersey without hindrance if he simply observes the law of the land.

This has been accomplished through the activity of the giant organization which has its headquarters in Newark. The club is said to be the largest and most powerful in the United States. It was founded June 1, 1903, with twenty-nine members. Two years ago it moved into its present quarters at East Park street and Park place, Newark, and to-day it has 2,087 members, including the leading citizens of the state.

The club takes a strong position in every line of automobile activity. In the first place it offers legal protection against persecution and unjust suits instituted against members. The club takes up the legal battles without charge and the records show that it has met with extraordinary success. While the casual reader might imagine that this feature of the work would seem to encourage reckless handling of automobiles under the protection of the organization, the very opposite is the truth.

The felicitous outcome of the club's campaign against "over-officiousness" on the part of certain country constables and justices, which rendered necessary the \$2-bill bankroll as a condition precedent to any kind of an extended tour, was the result of a plan worked out by A. B. Le Massena, secretary of the organization. When the "over-officiousness" was at its height, the club organized a motor-cycle squad consisting of some ten or a dozen members and when an unwary tourist was about to trundle into a speed trap, at the end of which was a log chain and a group of "needy" officers, a motor-cycle emissary from the club would dart out of a crossroad and halt the automobile. Then the sentry would hand the occupants of the car a card that read like this:

Warning! Speed Trap Ahead

You are warned that a speed trap exists on this road just ahead. Go very slow until you pass the danger point.

This Warning Is Issued by the
New Jersey Automobile and Motor
Club

On the back of the card is printed a blank application for membership and not a few of the enthusiastic members of the club were first introduced to it through this medium.

If the motorist happened to run foul of the "authorities" he was instructed to take complete data of the proceedings. This consisted of the name and address of the member; the date; the name of the justice and his location; names of witnesses, and the amount of the fine. He was also instructed to take a receipt for the fine, if one was levied.

This proved most disconcerting, as it gave a definite line upon the money paid in and afforded a basis for appeal that cut down revenues with a broad sweep. One illuminative fact has developed since the club commenced its campaign. The amount of fines turned into the state treasury has increased, while the club members say that prosecutions have been cut down over half.

The club gives from six to ten runs and tours during each year and at least one real contest. The runs are all strictly for the pleasure and benefit of the members, while the contest

brings out manufacturers' cars in large numbers. This year the event will start early in the morning of June 11. Four classes of cars have been provided for and strict technical rules will be observed. Class A includes cars listed at \$950 and less. Class B includes cars listed between \$951 and \$1,500. Class C includes cars listed between \$1,501 and \$2,500. Class D includes cars listed at \$2,501 and over.

The course, which has been laid out to cover all kinds of roads and conditions from the steep hill and narrow path to the broad and smooth highways of the level plains, is 145.3 miles long. Twice around is the distance of the race and the small cars are required to complete the course in fifteen and a half hours, while the other cars must make it in an hour less. A liberal entry list is expected as soon as the blanks are distributed.

Silver cups for the best scores in each class have been provided. The entrance fee is \$15.

The newest project of the club is the acquisition of a country branch. Much care was exercised in the making the choice of a location and the decision recently has been announced that the selection is a five-acre plot lying near Butler, N. J.

It is about twenty-five miles out from Newark on the old Pompton turnpike. The route is via a stone road all the way and leads along the scenic Pequannock river road. The way from the Newark headquarters to Butler is through Montclair, Singac, Mountain View, Pompton to Butler. The branch clubhouse site is in the foothills, 700 feet above sea level. The house stands on a bluff, fronting upon a private lake of sixty acres extent. This lake is stocked with game fish and is strictly preserved. It is called Apshawa Lake and is one of the most beautiful spots in that section of the country. A bungalow for the benefit of members who wish to enjoy the fishing is being built, and many improvements in the present plant are being made.

There is a spacious old mansion now upon the property, but the club intends to build an addition that will double its size.

The plans contemplate a clubhouse two and a half stories high with a basement. There will be a chauffeurs' dining-room and quarters and on the main floor a restaurant to seat 60 persons. The upper floors will contain a dozen bedrooms, equipped with every convenience. Between the addition and the present building the club will build a pergola and corridors connecting it with the old building and a wide veranda will surround the whole.

The townhouse of the club, at 64 Park place, is an impressive building. It is three stories and basement and when the club first occupied it it seemed as if it would be large enough for all time. But in two years the New Jersey Automobile and Motor Club has grown so swiftly that the big house is no longer adequate for its purposes. This year the club will stay in the present quarters, but next year a permanent location is to be purchased.

The club has a lot of attractions and conveniences. It has a restaurant and grill-room that rival the best in Newark in the matter of cuisine and service and is equipped with billiard and pool tables and rooms where bridge and other games may be enjoyed, beside a dozen other details of service to its members.

In a financial way the club is in excellent shape, owing nothing and possessing a comfortable bank balance. Its secretary, Mr. Le Massena, is a business man of high ability and he has the confidence of his officers and governors as well as the general club membership.

The annual meeting was held very recently and the following officers were chosen: President, Clarence H. Bissell; vice-president, H. D. Bowman; treasurer, George H. Simonds, and secretary, A. B. Le Massena. The board of trustees includes besides the above: W. C. Crosby, Guido O. Groebe, Dr. F. B. Meeker, J. B. Scarlett, Lewis Strauss, Paul E. Heller and J. L. Adams, Jr.

South Shows How Roadbuilding Is Done There

THE problem of the use of convict labor in building the good roads of our nation is fast assuming an aspect of particular importance, and is being given the serious consideration of the chief executives and other thinking men in the several States interested in this movement. At the present time there are a number of the commonwealths in the Southern sections of this country which have shown a commendable spirit in having their prisoners do a work which benefits the entire State rather than spend their time in idleness or in a series of prison occupations which simply pay for their own expenses and do not benefit any one outside.

The importance of the good-roads movement, with its lessened cost of transportation, and its increase of automobile touring with the accompanying influx of money, is fast being realized by many of the States and the developments in this line are of particular interest. Louisiana, sometimes supposed to be a State which was not making any special efforts in the direction of progress, is now showing itself to be wide-awake and the movement which has been started there for good roads, with the support of some of its most influential men, will probably do more to open up that section of the South than anything that has happened in recent years.

The history of this movement for good roads is an interesting one inasmuch as it has taken two and a half years to bring these plans to a culmination and to show actual progress in the work. New Orleans as a city is a great surprise to Northerners, for its reputation of quaintness, of old style, and appearance of a past age, are certainly misnomers.

In the matter of its fine streets, large substantial buildings, and beautiful residences, it is not surpassed by any Northern municipality, and it is, perhaps, this prevailing spirit of progress which has influenced the promotion of the Motor League of Louisiana, a body which is composed of well-known and in-

fluential citizens, with a steadily growing membership. The necessity for good roads in the State was at once appreciated upon the formation of this organization and just two and a half years ago the campaign for improved highways was begun by P. M. Milner, the president, and Victor Aschaffenberg, secretary, both of them enthusiastic automobilists.

It was figured that \$30,000 would be necessary to complete the first road in order to show the advantage of the improved service if extended throughout the State, and it was decided to select a certain old trail, built eighty years ago, leading to Chef Menteur, which would give a distance of twenty-three miles and would open up a country renowned for its fishing and hunting, allowing the trip to be made in a couple of hours by motor, to grounds which could only be reached by train or boat at certain times of day and in several hours. When this route was announced, the failure of the plan was at once predicted because the road was at that time absolutely impassable and it lay through a country of luxurious Southern foliage, where splendid live oak trees and hanging Spanish moss formed an archway overhead. Chef Menteur has a splendid natural harbor and it was formerly open to the Gulf of Mexico, but the Louisville and Nashville Railroad fifty years ago built tracks across the outlet compelling all vessels to go to Rigolets. Recently the United States Government Engineers have pointedly recommended that this railroad build a drawbridge, thereby giving a coast outlet to Chef Menteur for yachts and lumber and oyster schooners, and making a road thirty miles shorter through Lake Borne, from the Gulf into the Mississippi at New Orleans.

It was soon found that \$30,000 could not be raised among the motorists whose interest could be enlisted, but this did not deter the ideas of the moving spirits of the new club, and seven of the men contributed \$100 each for a survey of this road to be

made through the City Engineer, W. J. Hardee. The survey was reported most favorably and the scheme was pronounced thoroughly practicable so that the movement was started in earnest. The first assistance was received from Mayor Martin Behrmann and the City Council, who at one night meeting introduced an ordinance, passed it unanimously, and appropriated \$2,000 for experimentation, as to the best type of road surface. The Mayor gave his personal assurance that if the road was constructed it would be maintained by the city, being within the city limits. It might be stated here that New Orleans has the largest area of any city in the country, having 265 square miles within its boundaries, although only seventy square miles are populated. Of the twenty-three miles to Chef Menteur, only eighteen had to be constructed by the League inasmuch as the remainder was composed of city asphalt streets and a series of splendid shell highways in the suburbs.

About this time Governor Sanders, himself a good-roads enthusiast, devised a new scheme of using the convict labor in the open country rather than in the closed prisons or on the state farms. The failure of other cities in this particular was assigned to the fact that they farmed the criminals out and there were many serious complaints against the treatment of the latter, who were entitled to at least human consideration, so this up-to-date chief executive arranged a new plan. In Louisiana, the Governor has the right to furnish convicts for other work than on the cotton and sugar plantations of the State, as long as they are not leased. On these farms they have paid their own expenses, but at times there are more convicts than necessary, so in conjunction with the automobilists it was arranged by the State authorities late last Fall to organize camps of twenty-four negro convicts each for work on the roads. The white prisoners are used in the commissary department, and all of the men are watched constantly.

The Motor League of Louisiana agreed to take the first camps upon the following basis: To pay for all food, the salary of the armed guards, one-half the cost of the resident engineer, and the fee of the visiting physician who inspects the negroes three times a week, and the state agreed to furnish the camp equipment, consisting of a commissary wagon, one or two berth wagons, a portable screened jail, tents, etc.

On the twenty-first of February of this year the actual work on this roadway was started and the first formal inspection took place on April 17. In just about two months, working six days a week, the convicts have dug ditches, and graded and crowned roads for a distance of about four miles, from Gentilly road to Michoud station, and they have given positive assurance of the success of this great undertaking. It is estimated that it will take eight months longer before the preliminary, or comparatively rough work, is completed, and perhaps, within this time they may have an opportunity of putting on the top coat of heavy gravel covered with a dressing of asphaltum oil.

Upon this pleasant Sunday in April there congregated at a

prominent point in New Orleans, a party of particularly distinguished persons, who arranged to look over the ground thoroughly, and to give especial attention to the conditions of the convict camp at Lee Station. A number of local motorists volunteered their services to carry the State and City officials to the scene of action, and the factory representatives of the Premier Motor Mfg. Co., who were at that time in the city, placed the big six-cylinder Wistaria Premier touring car, which has been used by the Imperial Potentate of the Shriners during the convention, at the disposal of Governor J. Y. Sanders, ex-Governor W. W. Heard, president of the Penitentiary Board of Control, and Mayor Behrmann. E. B. Williams in a Premier carried E. E. Sykes and the newspaper men; A. J. Stallings in a Locomobile carried J. J. Frawley, president of the City Council, and James Reynolds, Chief of Detectives; C. H. Ellis, president of the United Fruit Company in his Peerless was accompanied by Henry Krohn and Captain John Deibert, a wealthy lumberman; and Palmer Abbott in his Packard carried Mr. Milner, Mr. Aschaffenberg, Joseph Schwartz and G. F. Boudereaux. Others in the party were E. B. Williams, E. J. Roderigue, M. B. Fletcher of the Premier Co., and the writer.

This party was driven through the beautiful suburbs of the city and out into the bracing morning air, through groups of picturesque negro shanties, and bits of woods and fig orchards, to the country of the live oak and the real Southern scenery. It was interesting to the Northerners in the party to travel over several miles of shell roadway which are as hard and well kept as anything in Jersey, before coming to the new operations. They were then taken over four miles of recently constructed surface at a lively clip, and the new road appeared to be particularly solid and well drained. But beyond the point to which the improvements have at present reached there are miles where an automobile would be useless, and indeed one of the cars sank so deeply as to necessitate taking it out. This was just an apt illustration of the "before and after treatment" and showed the necessity of the enthusiasm now abounding. The Motor League has paid for the plows, scrapers, and other machinery, and a large number of the members have contributed between \$100 and \$200 each to assure the furtherance of the operations. Their success is leading other parishes to inquire about the movement and Governor Sanders has assured them that any one in the State may receive organized camps of convict laborers.

The plans for the future call for a belt road around the entire city, with a number of well-prepared feeders into the interior. As yet no definite ideas have been formulated as to a series of roads which would lead from New Orleans, the principal city of the State, to the large cities in the neighboring commonwealths, such as Atlanta, Mobile, Memphis, and Texas points. It is very probable that this will be taken up as soon as the present situation is shown to be a phenomenal success and one which bids fair to give more life and wealth to New Orleans than any single factor in recent years.



Start of Governor and Party to Inspect Roads in a Premier

Beyond the Road Improvement, Even the Edges are Dangerous

Standard Process of Finishing Automobiles

By M. C. HILLICK

FIRST let us consider the oil and lead system which, since the early days, has been the premier system in all departments of painting where quality is a factor of importance, referring to wood bodies only.

Sand and clean up the surface. Into pure raw linseed oil stir enough keg white lead, ground in oil, to stain the oil somewhat and check the excessive penetrating property of the oil. Whip the lead into a batter before adding it to the oil. Lay coat on thin and smooth.

Use a purchased ready-mixed roughstuff, or, if preferred, a shop-mixed one, adding to either, for this first coat, a small quantity of keg lead to give the material greater density and compactness of texture. If shop mixed take equal parts, by weight, of keg lead, oil ground, and any good American filler, beating the two thoroughly together to a stiff paste, in equal quantities of coach japan and rubbing varnish, then thinning to a proper brushing consistency with turpentine. With a good chisel-pointed brush apply a coat of this filler.

The Fourth Day Brings Work to Do

Go over the surface carefully and putty up all defects with a hard-drying automobile putty made as follows: Dry white lead, three parts; finely bolted whiting, one part. Mix in equal parts of coach japan and quick-rubbing varnish to the proper working consistency.

Apply second coat of roughstuff, laying material off at right angles to the first coat. If the ready-mixed roughstuff is used omit the extra allowance of white lead mentioned in connection with the first coat.

Sixth, Seventh and Eighth Day's Demands

Apply one coat of roughstuff each day, changing the color of the last coat by adding either a little dry Indian red or yellow ochre, thus serving to give the workman a guide coat to rub by.

Using plenty of water, with blocks of artificial rubbing stone, which in composition run from coarse to fine, using the coarse stone first and the fine to finish with, block down the surface to a smooth level condition. Wash the surface thoroughly.

Sandpaper with No. 0 paper to loosen up possible accumulated substances. Dust off and apply one coat of color. P. M.—Apply a coat of color-and-varnish.

With a thin piece of perforated felt, wet, and dipped in pumice-stone flour, go lightly over the surface, "killing" the gloss uniformly. Wash off and apply a coat of elastic rubbing varnish containing just a pinch of the body color to preserve the original purity of it. In case any of the lakes or the transparent colors used, as a rule, in the form of glaze colors, are employed, it will be necessary to change the system to the extent of introducing a preparation coat of color and using the glaze coats over this. Rub the surface with water and pumice-stone flour, applying a firm, uniform surfacing, wash up, and stripe, and apply other ornamental work desired.

Apply Varnish on the Sixteenth Day

Wash up and apply a second coat of elastic rubbing varnish.

With water and pumice-stone flour rub the varnish all over thoroughly and uniformly wash up perfectly clean and flow the surface with a pale elastic finishing varnish of the best grade.

During this time the chassis should be painted in a manner to correspond to the body and brought to a finish.

There are a number of patent surfacing systems being marketed by paint and varnish manufacturers which may, without disadvantage, be substituted for the lead-and-oil system above outlined, the first or priming coat of these systems being a transparent medium, and in some cases to be wiped off with soft pieces of cloth after being brushed on. The time limit does

not, however, vary greatly from that above described for the lead and oil, when first-class work is in order.

By applying roughstuff, one coat in the morning and one in the afternoon, making two coats per day take the place of one, and omitting one coat of rubbing varnish about three days in the schedule may be saved, thus getting the finish within 16 days.

Rapid System of Finishing Is Cheaper

The demand for rapid systems of painting both metal and wood bodies has developed to such an extent of late that there have been evolved methods with which to meet this demand.

For metal.—Clean surface thoroughly. Apply either a patent metal primer of which there are plenty, or one made of one part raw linseed oil and three parts turpentine with a stain of lead in it.

Mix dry white lead, three parts, and best bolted whiting, one part, in equal parts of coach japan and rubbing varnish, (elastic) adding a teaspoonful of raw linseed oil to each pound of the mixture. Work this down to a condition to smooth out under the blade of a broad, half-elastic putty knife, and apply to the surface with the knife, drawing the pigment out thin, smooth, and in shape to sandpaper to a good surface with a minimum amount of work. Color this surface to meet any shade desired for the final body color.

Sandpaper on the Third Day in the Morning

Sandpaper surface thoroughly, first with No. 1 sandpaper, second and finally with No. 0 to fetch out the fineness. Same day, P. M.—Dust off and apply one coat of the regular body color to be used, if such color is known as an opaque color. Lay on a coat of ground work color, if a transparent or glazing color is called for. In mixing this first coat of color use one part raw linseed oil to five parts turpentine.

Apply coat color-and-varnish or coat of glaze.

Rub lightly with a roll of broadcloth dipped in water and in No. 00 pulverized pumice stone to deaden the gloss and knock down any dirt atoms. Same day, P. M.—Apply coat of elastic-rubbing varnish into which a bit of the flat color has been thoroughly stirred. Again, with pads of felt dipped in water and No. 00 pulverized pumice stone rub the varnish carefully, clean up, and apply any necessary striping.

Color Is Again Applied on Eighth Day

Apply coat of clear elastic rubbing varnish.

Again rub as above with water and pulverized pumice stone, wash up, and finish with a rich, full body-finishing varnish.

During this course of painting and finishing the body, the chassis should be cleaned, painted and finished to match the body.

For wood-body surfaces this same rapid system may be employed, except that in the priming six parts raw linseed oil and two parts turpentine be used. All other operations to be carried out as in case of metal surfaces. By substituting quick-rubbing varnish for the elastic the system may be abbreviated to the extent of at least two days.

The chassis should in painting always be brought along with the body and given every necessary attention. It should have the same primer, and above this should be laid at least two good coats of lead, or, as the case may be, patent surfacer, each coat being perfectly sandpapered and made fairly glass-smooth, and puttied wherever needed. Then in order come the color or ground-work coat, color-and-varnish or glaze coat, then a light rubbing with water and pumice-stone flour, striping, and one coat clear rubbing varnish. In due season surface this coat down with water and pumice-stone flour, wash clean, and finish.

Thus is the automobile painted and finished with due regard for harmony and a proper balance of all the parts.

1910 Touring Information for Autoists

PERHAPS, in time, the type of dictionary which will be accepted as authoritative will give a comprehensive definition of the word "touring." It is not so long ago that the idea of touring was confined to the process of racing around the country, violating speed laws and ruffling the temper of the natives, besides tearing up the roadbed and doing all the other things which made it utterly impossible to know anything about the locality through which such swaths were cut, and of pleasure it was frequently confined to a restful sojourn in the ward of convenient hospitals.

Familiarity is said to breed contempt, and the time arrived in the career of the sensible autoist when his contempt for mere speeding is best expressed by the leisurely fashion in which he prefers to tour when the spirit moves, and this leisure idea is quite independent of the ability of the car, which in nine cases out of ten will do better than a mile-a-minute pace. Touring for pleasure, under the circumstances, must take into account a

INDEX TO CITIES AND TOWNS

LOCATED ON INDEX MAP

How to find a name on the map—The letter and figure opposite each name correspond to those shown in borders of maps and indicate location of city or village. To find the name place finger on the letter shown at the top of the map and draw an imaginary line straight down the map until opposite the given number.

The figures in last column are page numbers upon which maps may be found.

Towns	Location on Map	Page No.	Towns	Location on Map	Page No.
Abbot, Me. (Pop. 716)	1-4	728, 729, 730	Andover, N. H.	1-5	60, 153, 177
Abington, Mass.	1-5	230, 231, 232	Andover, N. H.	1-5	60, 153, 177
Abington, Mass.	1-5	230, 231, 232	Andover, N. H.	1-5	60, 153, 177
Abington, Mass.	1-5	230, 231, 232	Andover, N. H.	1-5	60, 153, 177
Abington, Mass.	1-5	230, 231, 232	Andover, N. H.	1-5	60, 153, 177
Abington, Mass.	1-5	230, 231, 232	Andover, N. H.	1-5	60, 153, 177
Abington, Mass.	1-5	230, 231, 232	Andover, N. H.	1-5	60, 153, 177
Abington, Mass.	1-5	230, 231, 232	Andover, N. H.	1-5	60, 153, 177
Abington, Mass.	1-5	230, 231, 232	Andover, N. H.	1-5	60, 153, 177
Abington, Mass.	1-5	230, 231, 232	Andover, N. H.	1-5	60, 153, 177

Fig. 1—Facsimile of beginning of index to cities and towns with means for locating any given place on the guide map

know how far it was from this place to that, and if he could get through without having to hire a horse.

It would seem that the Official Automobile Blue Book for 1910 is designated to meet the needs of the autoist who prefers to tour; in fact, it gives, as a primary consideration, an index, which is reproduced in facsimile (just a small portion to illustrate the idea) in Fig. 1, and a diagram is there presented, by means of which, if the directions are followed, names of towns along the respective routes may be located on the "key map," a portion of which is given in facsimile in Fig. 3.

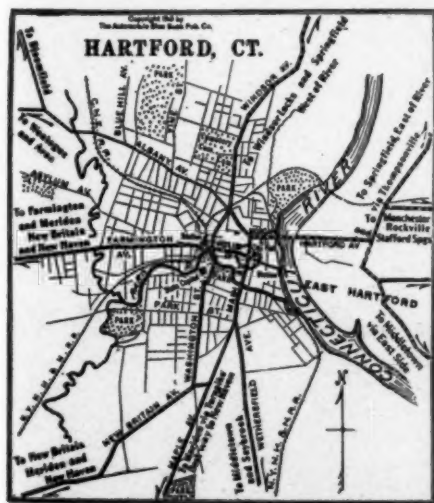


Fig. 2—Map of surveyed routes out of Hartford, Conn., which is one of a series of maps shown in Volume II of the New England Section of the Blue Book

certain familiarity with the scenery and the surroundings, and the problem which will confront the autoist of acumen in the near future will be solved when he finds an accurate source of information, historical, geographical and topographical, beyond the dream of the autoist of yesterday who merely wanted to

know how far it was from this place to that, and if he could get through without having to hire a horse. This map shows all the routes which were definitely surveyed by the topographical engineers employed in the building of the Blue Book, and each route is numbered.

With a view to a better understanding of the makeup of this comprehensive work, an illustration of its workings will be given as follows: Turning to page 189, the route map, as shown in Fig. 2, will be found, which map is of routes 161

to 180 inclusive. In order to make further progress in the explanation of the workings of this plan, one route will have to be selected, and for this purpose route 162 is given in facsimile one-half size, as shown in Fig. 4. The key map (Fig. 3) then, in conjunction with the index (Fig. 1), enables the autoist to find any desired route which has been mapped out in the book. With the key map, after having picked out the route number, it is only necessary to turn to the route map, which will be known by the number taken from the key map, and then to the route text, which also carries the same number.

The facsimile of route 162 (Fig. 4) is representative of the method employed throughout the book, and one of the important innovations is that of the "Baedeker feature," which gives a descriptive outline of the route, naming the historical points of interest, and affording to the autoist a clear insight into the things which will make touring pleasurable, if during his travels an attempt is actually made to appreciate the points of merit along the roadside. In addition to the descriptive outline, a brief statement of the condition of the road is put, and then comes the mileage, both total and intermediate, and instructions which will enable the tourist to identify the landmarks by means of which he will be enabled to traverse the route with a feeling of confidence, backed up by the assurance that every foot of the way was surveyed under the skillful eye of a topographical engineer of recognized capabilities.

Volume II of the Official Automobile Blue Book for 1910 covers New England most completely; it contains 30,000 miles of routes which were actually surveyed, as against 20,000 miles of surveyed routes as set forth in Volume I, as previously issued. There are many other differences worthy of comment.

(Continued, Page 901)

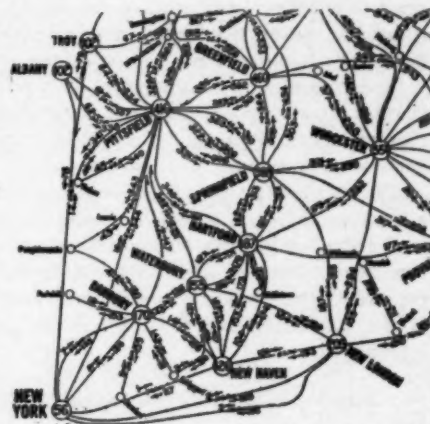


Fig. 3—A portion of the guide map from the front of the Blue Book by means of which routes, which are given numbers, may be located, preliminary to turning to the route map

Route 162

Route 162—Hartford, Conn., to Springfield, Mass.—35.6 m.

Route map, page 187. Service route, No. 313

Descriptive Outline—Leaving Hartford via Windsor Ave., we pass to the right of Kew-Ford and follow the first highway laid out in Connecticut (1688) to Windsor, where "Plymouth Blowers" was the site of the first house erected in Connecticut, the materials, all fitted, having been brought from Plymouth, England. Crossing the Tuxis or Farmington River, we pass through "Palladium Green," which was Windsor's center of trade in the early days. On the right, 2 miles beyond, is the old Hallowell mansion, restored by the E. A. E. Windsor Locks, located on the bank of the canal, connects with Wareham Falls by a suspension bridge (see Route 161). An interesting variant to our trip may be made through Suffield, which occupied the ravages of the Indian war of 1704, the fact that the settlers paid the Indians 100 for the town site. Originally called Stony River, it became Suffield, then Suffield in 1804. Tobacco raising is the most important industry, and here the first cigars in New England were made in 1820. A pleasant trip along the bank of the Connecticut River, crossing on South End bridge, we turn left into South Main St., Springfield (see page 188).

West side all the way, with connections across the Connecticut River to east side route at Windsor Locks; about half macadam. (For this and optional exits, see Hartford city map, page 189.)

0.0 0.0 **HARTFORD**, City Hall, Main & Asylum Sts.

0.5 0.5 North on Main St., curving left with trolley (0.2 m.).

0.5 0.5 Stone watering trough at irregular 4-corners; bear right with branch of trolley on Windsor Ave.—asphalt; becoming macadam. Direct along Connecticut River.

6.5 6.0 **WINDSOR**. Fork at end of green on right; turn right with branch trolley. Caution for sharp right turn under RR. with blind left turn beyond (6.0 m.). Go through covered bridge over Farmington River (6.5 m.) on stretch of fair dirt road.

9.3 2.8 Fork; bear right with trolley on dirt road, coming on macadam (10.4 m.); cross RR. (11.1 m.).

12.1 2.8 **WINDSOR LOCKS**. Straight on with trolley.

(Right across river at large electric sign connects with Route 161, at Wareham Falls—0.5 m. beyond.)

12.5 0.4 Fork; bear right with trolley; (left is variant through Suffield, see note a). Macadam ends (13.2 m.); Cross RR. (13.5 m.)

12.6 1.1 Fork; trolley station on left; keep right, leaving trolley, on good dirt and gravel road. Join tracks (from left—18.7 m.).

20.5 6.9 Fork in small settlement; bear right—leaving trolley—short stretch of sandy road, ending on macadam (21.5 m.).

23.4 2.9 4-corners; turn square right, immediately cross long iron bridge over Connecticut River, and over RR. bridge just beyond.

23.6 0.4 End of road; turn square left into Peconic Ave.

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In the Building of a Private Garage

NCESSITY demands that the fuel problem be discussed at the same time as the garage construction, partly on account of the importance of the fuel in automobile work, and then in view of the hazard which will be run if the fuel is not properly handled. Referring again to the question of a "pit" in the floor of the garage, even allowing that it has a certain utility, the fact remains that it will serve as a pocket for vapor of gasoline and air. This mixture will reside in the pocket until it is borne away with a current of air, or it will be there when the motor is cranked, ready to respond to the touch of flame, as from the timer of the motor ignition system.

In a pocket such as this there is small chance of realizing a current of air, unless a means is provided, and even assuming that an artificial means is afforded, it must be of a character such as will require no attention at all, as a natural draught, which involves the use of a chimney of some height. Fig. 5 depicts a section through a garage showing the pit in the concrete floor. G is a drip of gasoline from the carburetor of the motor, and V represents the vapor which is formed; this vapor should be highly explosive; the proportions will naturally be rich at the bottom of the strata and will taper off as the top of the formation is approached.

Some Features of the Gasoline Problem Exposed

In order to better appreciate the characteristics of gasoline, an attempt will be made to illustrate the points to be enlarged upon. Fig. 6 is intended to represent the landscape on a foggy day, showing the fog in somewhat dense formation, lying close to the surface of the earth. Referring to Fig. 7, the fog is clearing up from the ground surface under the action of a mixture of gasoline and air. The gasoline is obtained for the purpose from the barrel B; it will mix with the air as it boils out of the barrel (assuming there is an opening in the barrel for the escape of the gasoline) and the mixture of gasoline and air will be heavier than the air in its normal state, with the result that the mixture will form and displace the air (in the fog state) and fresh air will rush in so that the fog will be lifted. In this way, the use of gasoline will serve the purpose of lifting fog, but the plan has no practical significance beyond the illustration of the moment in the attempt to show that a pit under a garage is a dangerous device.

Taking the illustration Fig. 7 as proof of the fact that gasoline will hug the lower stratum, it is but a step to the conclusion

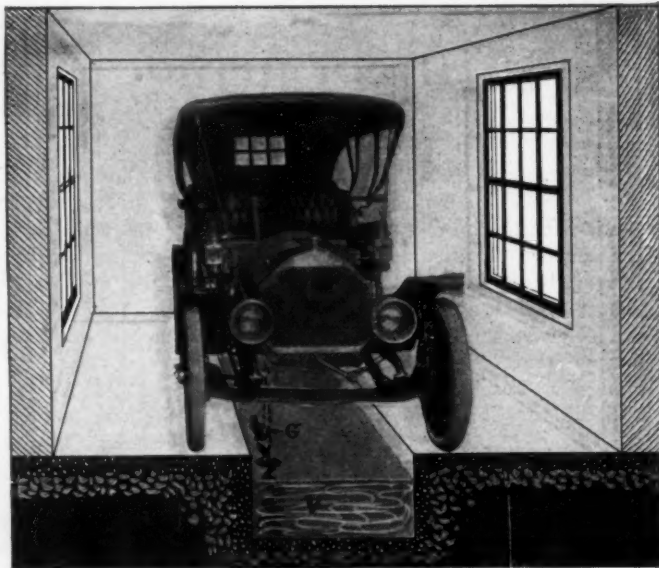


Fig. 5—Section of a garage showing a pit under the automobile to accommodate the workman and to trap in accumulations of explosive mixture

that gasoline, if it dribbles out of a carburetor, or is turned out of any other source in a garage, will fall to the lower level and form an explosive mixture in proportion as it is diluted with air. If the low level happens to be a pit the gasoline mixture will be entrapped and it will rest in the trap until it is ignited. Fig. 8 shows the right principle to utilize. The floor of the garage is without any depression at all, and a means is afforded by which the mixture of air and gasoline, as it is formed, is driven out through openings at the floor line; there may be any number of these openings, but just a few, perhaps four, properly located will do the work as efficaciously as the occasion requires.

Sewer Connection Should Have a Trap

In a small private garage the best way to avoid complication is to do without a sewer connection, but if one is desired for any reason, the best way will be to provide a suitable trap, having in mind the fact that gasoline vapor will form in the sewer opening, and after it accumulates sufficiently, it will serve as a source of danger. Fig. 9 shows a rather pretentious "well" which is especially designed to overcome all sewer trouble, due to the accu-



Fig. 6—Landscape on a foggy day, used to illustrate the point to be made in relation to the displacing ability of mixtures of gasoline and air



Fig. 7—Barrel of gasoline sunk in the ground, leaking gasoline to the surrounding, as the liquid evaporates and mixes with the air surrounding it lifts the fog by displacement

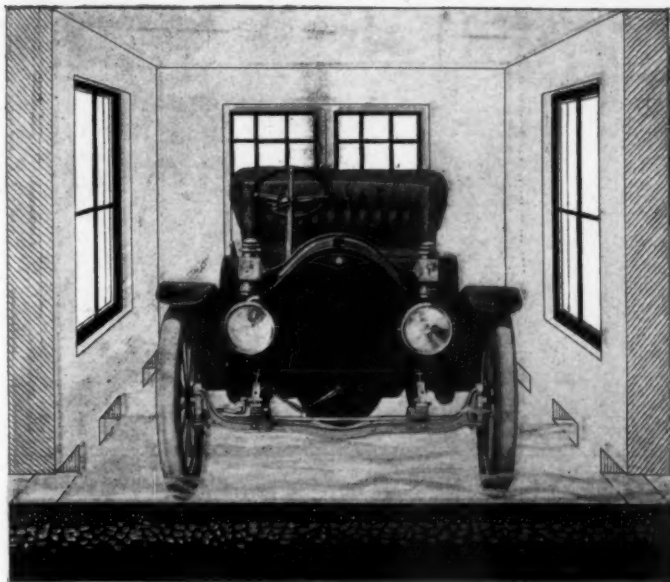


Fig. 8—Garage floor without a pit; openings in the walls near the floor, mixture of air and gasoline being swept away by air currents which are formed by draughts set up

mulation of gas; this plan is available for use in public garages, but since it is designed on the right principle the same idea will have to permeate any such application, be it for a public or a private garage.

In this example the cover of the "well" is perforated, the floor is supposed to slope toward the well, and when water drains into the well from the surrounding floor, it passes down and forms a seal; excess water will then pass out through the sewer connection. By connecting the lead from the air vent to a stand pipe, which should lead to the roof of the structure, a current of air will be set up and the gasoline vapor will be conducted up to the roof, will be well diluted with air en route, and will be borne away on a passing breeze to safety.

In a private establishment, especially if it is in the wooden district, with little room to spare, all the precautions as here intimated and many more as set forth in the various insurance rules, as promulgated by the Board of Fire Underwriters for the respective districts, should be observed, and it is something of a question as to the expediency of using a wooden garage under such circumstances. Modern concrete construction lends itself with facility to the purpose, and it might even be in the path of wisdom to make the doors and windows substantially fireproof, so that if a fire after starting cannot be smothered, it may be permitted to exhaust itself furnace fashion.

Prize for a Safety Automobile Crank

A French association for the prevention of accidents in industrial work has offered \$300 in prizes for a crank or safety device for hoists, cranes, and all forms of lifting apparatus, and also for explosion motors, which shall, in the first case automatically stop the descent of the load, or in the second case, throw out of gear the driving action when not required. The invention remains the property of the competitor, who must himself be responsible for its due protection by patents. Drawings of competitive devices should be sent to the office of the Association des Industriels de France contre les Accidents du Travail, 4, Boulevard Saint-André, Paris, France. A non-return starting crank for gas engines, of simple design, was illustrated in the January, 1910, issue of *Machinery*, which may be of interest to prospective competitors in order to get informed of the most important recent developments along these lines. The above-named publication, from whose pages this note is quoted, will eventually render any further information in this matter.

Champlain Transportation Improved

THROUGH the courtesy of the Champlain Transportation Company, and the Lake George Steamboat Company, of which D. A. Loomis is manager, with headquarters at Burlington, Vt., THE AUTOMOBILE is enabled to state that the conditions at Baldwin are much improved; the highway is in far better shape than last year, and the former steep grades and deep sand may now be avoided. It is stated by the Transportation Company that after June 1 automobiles can be discharged at Baldwin as well as at Roger's Rock. The conditions on Lake Champlain are such that automobiles may be handled at Bluff Point. The Transportation Company can handle practically every kind of automobile, excepting the limousine type, provided they exceed 7 feet in height. The rates for transportation are given in the following tables, and it will be noted that the rates on machines include one person, and column C gives the fare for extra passengers:

RATES OF FARE COVERING AUTOMOBILES, INCLUDING ONE PERSON IN CHARGE OF MACHINE, BETWEEN STATIONS ON LAKE CHAMPLAIN AND LAKE GEORGE

LAKE CHAMPLAIN				
Between	And	"A"	"B"	"C"
Fort Ticonderoga	Larrabee	\$1.25	\$2.00	\$.25
"	Westport	4.00	6.25	.90
"	Burlington	5.50	8.50	1.65
"	Port Kent	5.50	8.50	1.65
"	Plattsburg or Bluff Pt.	6.70	9.00	2.05
Westport	Burlington	3.75	5.00	.75
"	Port Kent	4.25	5.75	.80
"	Plattsburg or Bluff Pt.	5.50	8.50	1.25
Burlington	Port Kent	2.00	3.00	.40
"	Plattsburg or Bluff Pt.	3.00	4.00	.75
"	Port Henry	4.25	5.75	1.10
St. Albans Bay	Plattsburg	3.50	4.50	.75
Gordons	"	1.25	2.00	.25
LAKE GEORGE				
Between	And	"A"	"B"	"C"
Lake George	Sabbath Day Point	\$3.00	\$4.00	\$1.05
"	Hague	4.50	6.50	1.25
"	Baldwin	4.50	6.50	1.50
Bolton	Sabbath Day Point	2.50	3.50	.75
"	Hague	3.00	4.00	.90
Sagamore	Baldwin	3.00	4.00	1.25
"	Lake George	1.50	2.00	.50
"	Sabbath Day Point	2.50	3.50	.75

"A"—Automobiles seating two persons, one person in charge free.
 "B"—Automobiles seating more than two persons, one person in charge free.
 "C"—Fare for extra passengers, each person.

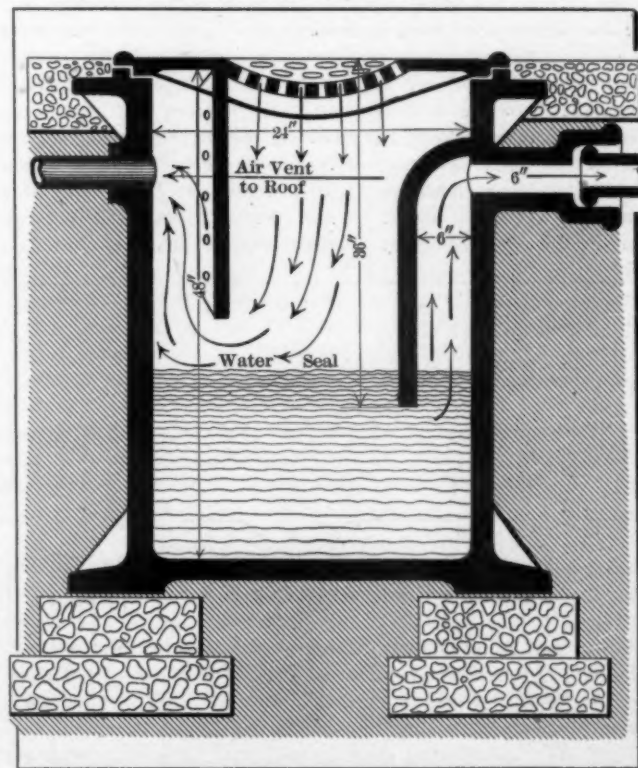


Fig. 9—Well hole so shaped as to serve as a safety trap at the sewer opening in a garage, with means for preventing gas from entering the sewer, and a draught pipe to dispose of the gas

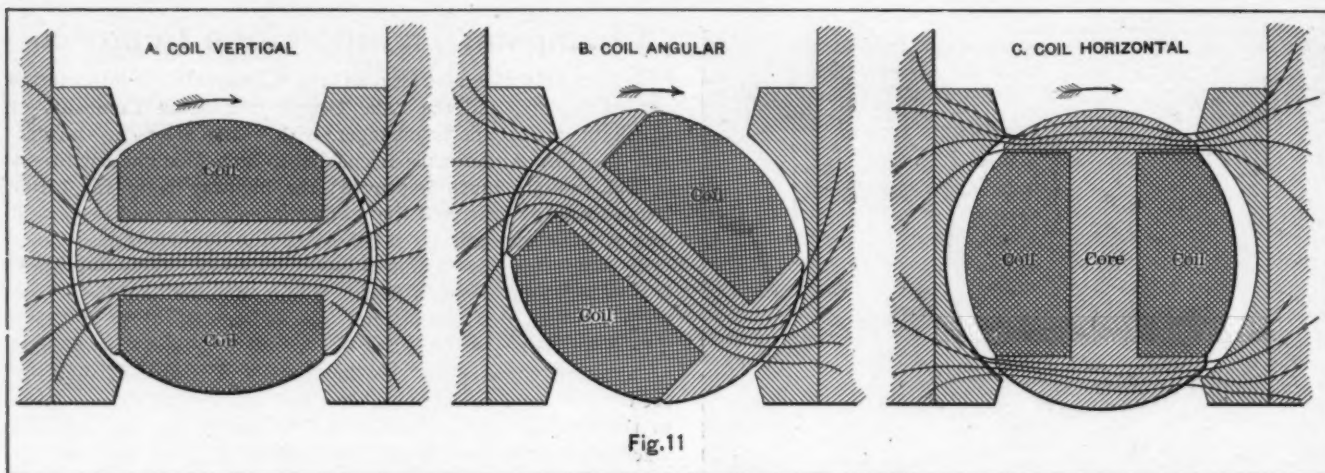


Fig. 11—Direction of lines of force with H armature in three positions. At the left, with coil vertical and H armature horizontal. In the center, both coil and armature set at an angle. At the right, coil horizontal and armature vertical

Magnetos—The Leading Types Analyzed and Explained

By HERBERT L. TOWLE

LAST week it was explained that the flow of current in a rotating-armature coil reverses direction when the coil is vertical. It was also explained that no reversal of flow takes place when the coil becomes horizontal because the change of the included lines of force from decrease to increase is offset by the reversal of the coil itself. Owing to the reversal of current when the coil becomes vertical the ordinary magneto gives an alternating current with two maximums per revolution.

In order to give the lines of force a ready path from pole to pole and also to modify their direction in certain respects presently explained, the actual coil is wound over an iron core of the form shown in Fig. 10 last week. The winding is very heavy and fills approximately the space shown by the dotted lines. From the form of this core it is known as the H armature.

Fig. 11 this week shows in the three views *A B C* the influence of the core on the lines of force. In these views both core and coil are shown in section, and the reader is asked to remember that when the armature assumes the position *A* the several windings of the coil are *vertical*—the position of zero current. When the armature is in position *C* the current is a maximum.

As the drawings show, the effect of the core is to concentrate the lines of force into the iron. Consequently when the armature has made an eighth of a turn, the magneto field is distorted somewhat as shown in *B*. When the core approaches the *C* position the lines of force abruptly change direction and pass

from one pole-piece to the other through the curved ends of the core, leaving the coils destitute of magnetic field. When further rotation of the armature has carried the core past the *C* position the lines of force rearrange themselves as abruptly as before, passing now from the lower left end of the core diagonally upward to the right-hand pole-piece. The effective work of the armature is thus concentrated into a narrow range or arc of rotation, and during the remainder of the half rotation little or no current is induced. Fig. 12 indicates roughly the character of the resulting curve of potential.

It is evident from Fig. 12 that an effective spark can be produced only within a certain range of armature positions. Precisely what this range will be depends on the actual potential, which varies with the speed. If the curve *A B C D*, Fig. 12, represents the varying potentials at 500 r.p.m., the curve *A' B' C' D'* will be approximately the curve at 1000 r.p.m. At very low speed, e.g., when cranking, only the peak of the curve will produce an effective spark. It is customary to set the armature in relation to the crankshaft so that when the spark occurs the core will have approximately the *C* position, Fig. 11, with maximum advance, in order to get the strongest spark when the most rapid flame propagation is desired.

From the character of this type of magneto it is evident that its rotation must keep step with the engine. As a 4-cylinder, 4-cycle engine delivers one impulse per half revolution, it follows

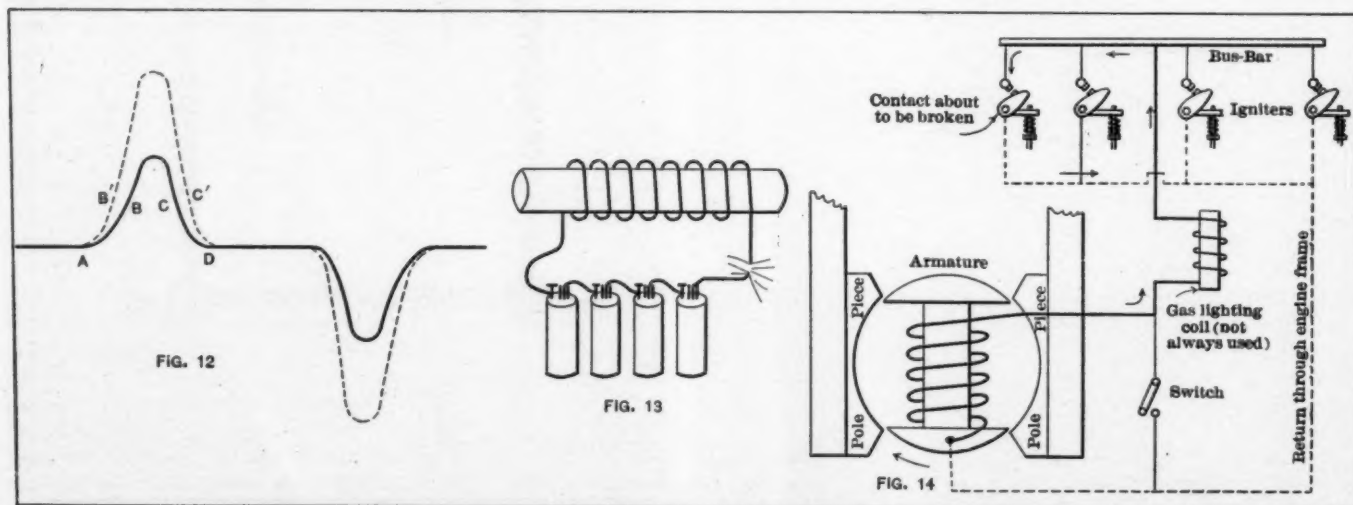


Fig. 12—Effect of H armature on induced current. Fig. 13—Diagram of gas lighting coil. Fig. 14—Diagram of low-tension magneto circuit for 4-cylinder engine (path of current through engine frame shown in dotted lines)

that for such an engine the magneto should be geared to run at crankshaft speed. If the engine has two cylinders the magneto still runs at crankshaft speed, since if it ran only half as fast it would not produce strong enough sparks when cranking. Of the two sparks per revolution, one is wasted, but as it comes near the end of the exhaust stroke it does no harm.

On a 6-cylinder engine six sparks are required in two turns of the shaft, hence the magneto must make three rotations to the crankshaft's two. This is accomplished by gearing. Owing to the higher speed a smaller magneto can be used on a 6-cylinder engine than on a 4-cylinder engine.

Thus far we have considered simply how the rotation of a magneto armature induces current. We are next to consider how this current is directed to produce sparks. To understand this, let us examine the familiar gas-lighting coil, Fig. 13, which is simply a coil of coarse insulated wire surrounding a bundle of soft iron wires. When a current flows through the coil and is suddenly broken, a momentary spark occurs at the point of break. This spark is due to the "extra current" referred to early in last week's article. The cause of this extra current is the same as the cause of the induced current in the secondary winding of an induction coil, namely, the sudden dying out of the magnetic lines of force passing through the coil. The extra current is strong enough to make a momentary bright spark, and this is the spark used in all simple make-and-break systems.

The igniter of a make-and-break system is simply a device

by an electromagnet instead of by mechanical means. The electromagnet is energized by the magneto current itself, and is timed merely by the strength of the current wave. In other words, the magnet in the plug attracts its "armature" and thereby breaks contact at the igniter when the current strength is sufficient to cause the magnet to overcome the very light spring which normally maintains contact between the points.

Fig. 15 shows an early and now obsolete arrangement for this purpose. A magneto is wired up to an induction coil exactly as if it were a battery, with the single exception that the switch is arranged to short-circuit it instead of to open the circuit. The interrupter is arranged to make and break contact mechanically, and is mounted on the armature shaft, though shown separately for clearness. When the magneto is used in this way a condenser is necessary, see Fig. 15. The condenser consists of a number of sheets of tinfoil, of which alternate ones are electrically connected. The leaves are thus connected, "half and half," to the circuit on each side of the break at the interrupter. If there were no condenser, a heavy spark would appear at the interrupter contact points, and, by delaying the dying out of the current in the coil, would weaken and prolong the flow of secondary current. In order to have the primary current die out as quickly as possible in the coil, and thereby deliver its maximum inductive effect, the condenser is provided to absorb the momentary extra current. The manner in which it does this need not here be explained; suffice it to say that the size of the

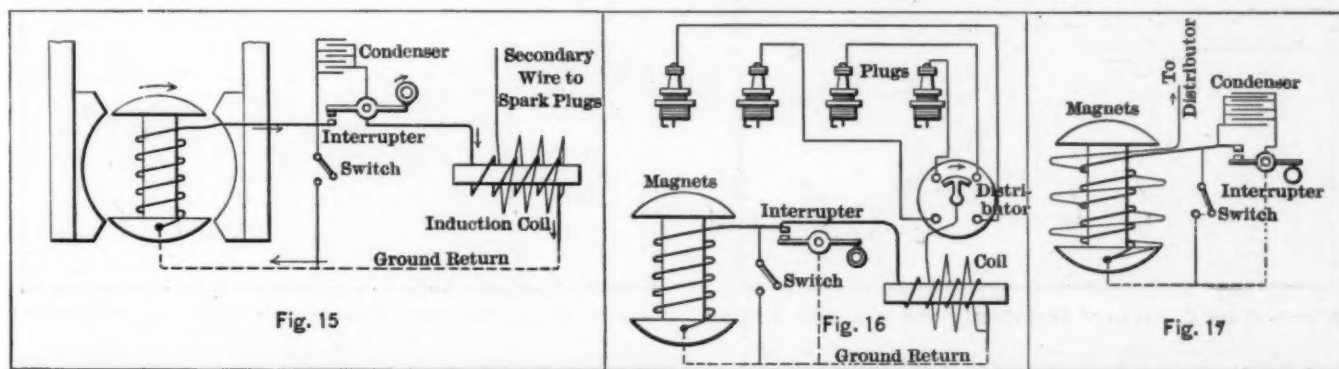


Fig. 15—Diagram of early magneto circuit using separate induction coil. Fig. 16—Diagram of circuit of modern types of magneto showing separate coil, showing also course of secondary current through distributor to spark plugs. Fig. 17—Diagram of circuit of modern high-tension magneto. Distributor and spark plugs not shown.

for making and breaking contact inside the cylinder. A frequent form is shown in Fig. 13. It comprises a stationary insulated contact piece, usually tipped with platinum or iridium for durability, and a moving contact finger attached to a rocking stem passing through the bushing in the wall of the cylinder. Suitable mechanical means is provided to make and break contact within.

When make-and-break ignition is employed, the magneto is simplicity itself. The armature has but one coil and induces a low-tension current only. One end of the coil is grounded on the armature core, and the other is insulated and led out through the armature shaft to a rubbing-current collector outside. The fluctuating current induced by the armature is led either directly or through a gas-lighting coil (usually the former) to a bus bar on the engine, making connection in multiple with all the igniters. Each igniter in turn makes contact for a short arc of crank rotation and then breaks contact, producing a spark. The next igniter does not make contact till the first has broken. To shut off the sparks the armature is simply short-circuited by a suitable switch or push button. It is a peculiarity of all magnetos that they can run short-circuited indefinitely without detriment, since the strength of the current is self-limited by local inductive action in the coil and core.

In a comparatively recent modification of the low-tension magneto-ignition system, the mechanical igniters of Fig. 14 are replaced by magnetic plugs. These plugs contain the same moving parts as the igniters in Fig. 14, but the rocking stem is actuated

condenser must be proportioned to the quantity of extra current which it is to absorb. Too small a condenser would fail to suppress the spark, and the contact points would therefore burn away with injurious rapidity.

The arrangement shown in Fig. 15 does not utilize more than a minute fraction of the energy of the magneto. A much more efficient arrangement, though less easy to understand, is shown in Fig. 16. This is now the standard arrangement for magnetos having separate coils. It will be seen that here the coil is not in series with the interrupter; the latter, in fact, simply short-circuits the armature. The induction coil, which is outside the magneto, has a primary winding of somewhat long and fine wire, so that without the action of the interrupter this coil would take very little current. However, when the interrupter breaks contact, the momentary extra armature current due to the break is strong enough to make itself felt in the induction coil as a sudden rush of current, and this momentary rush induces a high-tension current in the surrounding secondary coil. In this diagram is shown the distributor as arranged for a 4-cylinder engine. The secondary current from the coil is led to a revolving arm which delivers current successively to the four different spark-plug cables. The distributor is necessarily geared to run at half the speed of the armature and interrupter, since it supplies the four cylinders only once in two revolutions. To shut off the current the armature is short-circuited as before.

(To be continued.)

Aeronautic Progress Along Constructive Lines

By MARIUS C. KRARUP

(Continued from last week.)

SINCE the machine cannot turn about its axis, the canting is therefore in reality effected by raising the outer end, and consequently also raising the center of gravity. And the preliminary increase of tilt of the outer wing helps to make this effect of centrifugality decisive, or, in other words, helps to steady the balance and avoid fluttering. In a machine differently balanced, it would not be essential to steering, however. The main point is, that in some manner the centrifugality must be spent without interference with equilibrium. It cannot be permitted to drive the machine away from its intended course, as it does in the case of a racing car at a sharp turn in spite of ground friction. So, it must be harnessed to do other work.

While so many factors and forces are simultaneously involved in the balanced turning of an aeroplane, that it becomes difficult to speak clearly and at the same time correctly about the requirements, it is clear that design and control must in some manner permit the center of gravity to obey the centrifugal impulse, by taking it farther outward in the curved movement than

withstanding possible adverse influences of the wind, becomes an important item in the studies of the aeronautic designer. A glance at Fig. 2B will suggest how complicated the factors entering in equilibrium may become at a turn, with a biplane, when the lower plane may get partly in the way of the upper one, so far as resistance to lateral motion or wind action is concerned, thereby causing the center of resistances to such lateral motion or wind action to shift downward and outward, while the center of gravity will tend to swing around the new center, unless kept steady by the action of the vertical rudder and suitable changes in the tilts of the main planes.

Fig. 2C, representing a monoplane with dihedral angle and low center of gravity, indicates a method for resisting centrifugal action, mainly by the resistance of the horizontal wing at r_2 against downward vertical displacement and an increased resistance from the upturned wing at r_1 against lateral displacement.

The question of equilibrium at turns and the closely related

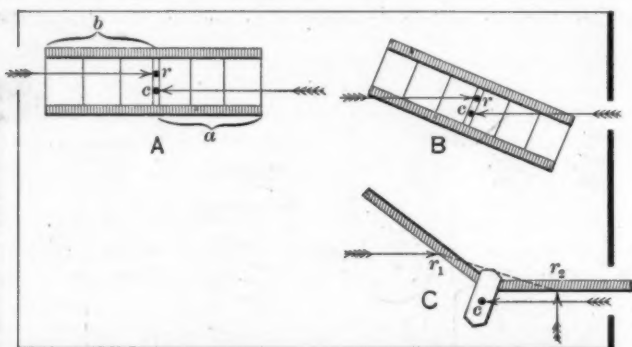


Fig. 1—A, B and C, Action of Centrifugal Force in Aeroplane Flight

it was before the movement was begun, and also that the action which produces this result must at the same time be made to produce increased air resistance against lateral movement of the machine, since the resistance to lateral movement is ordinarily very small and quite insufficient for offsetting centrifugality, especially in a biplane with straight front edges.

The canting of the machine serves both these purposes and therefore also serves to maintain equilibrium. It is not an inconvenient incidental effect of the vertical rudder action required for steering, like the listing of a boat, but a necessity. And the means for producing this camber and for controlling it, not-

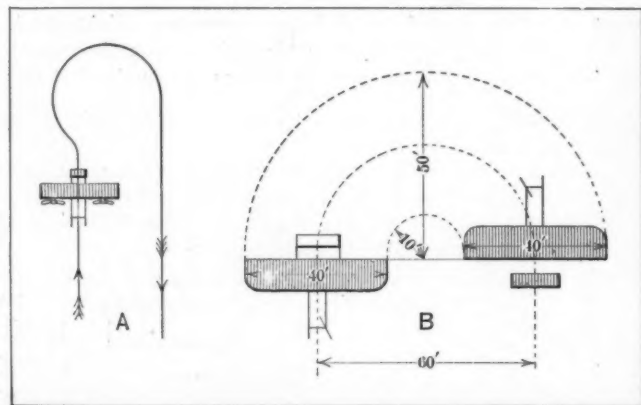


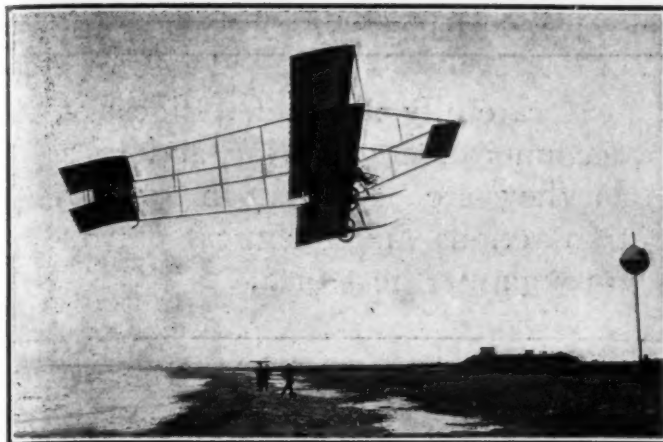
Fig. 2—A and B, Illustrating Requirements in Turning with Biplane

question of equilibrium in a side wind, can probably not be discussed to advantage in a general way, but only in detail and with reference to the different types of fliers separately. All flying creatures possess the faculty of lowering or raising the center of gravity with relation to the centers of air resistance, both in the direction of motion and laterally, and it does not seem quite settled, as yet, whether this element of mobility can be dispensed with in aeroplanes intended for flight in all kinds of weather, but it is a physical and mathematical certainty that engine power would be required for quickly raising the center of gravity of a machine during flight, once it had been lowered.

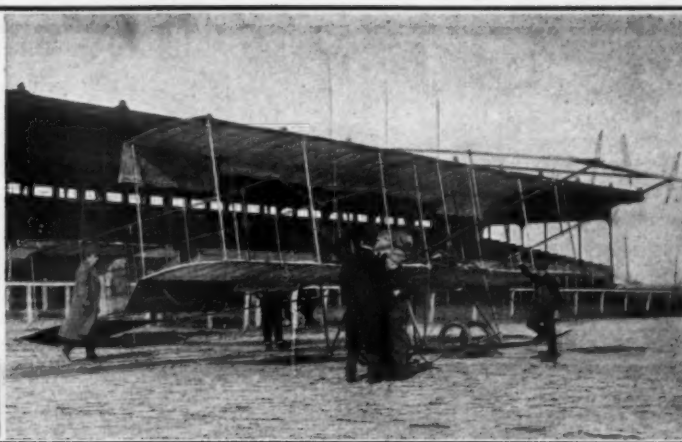
Some Effects of Curved Planes

IT is stated that the French builders of monoplanes are abandoning the deeply curved surfaces which were at first adopted with a view to getting a maximum of sustentation from the relatively small areas inseparable from monoplane design. They are at the same time providing the tails of these machines with larger "feathered" appendages, both vertical and horizontal, as in the latest Antoinette type, but opinions are divided with regard to what may be expected from these changes. Decisive performances are still missing, and a minority of the engineers whose ideas find vent in public take an opposite position. It is charged against the deeply curved planes that they make it difficult to maintain the equilibrium of the machine. One well-known engineer, René Arnoux, believes that this is most important, and that sustentation should be freely sacrificed in order to improve

the balance, and to this end he proposes that the hollow of the planes should be turned skyward instead of earthward, since this is what the wind does to the planes now used, in too many cases. He contends that the balance would thereby become automatic, the stability perfect, while the sustentation would not be sacrificed to the extent of requiring areas three to four times greater than with present design or much higher speed, since sustentation may also be obtained by higher tilts. It is generally admitted that nothing short of experiment and practice can fully decide these questions, by determining just what the resistances to propulsion and the sustentation are at various tilts and with various shapes of the planes, and the scientific world in France has gone into this subject with much energy. Rateau and Brillouin, both authorities in physical science, were the first to experiment carefully,



Rawlinson Making Turn at Nice Meet with Farman Biplane



Paulhan's Farman Biplane as Shown on His Tour in the U. S.

but the results obtained by them have been superseded for practical purposes, through the installation of an elaborate aerodynamic test station by Gustave Eiffel, the designer of the Eiffel Tower. Here the experiments embrace flat planes and planes of many different curvatures, and designers are watching the results with anxiety. They have shown, among other things, that flat planes give a maximum sustentation at a tilt of 30 degrees, and that the suction produced at the top of the plane is equally important with the thrust of the pressure surface; also that the rise in sustentation from 10 deg. tilt to 30 deg. is very slow.

At the aerodynamic institute at Koutchino in Russia, experiments have been made by Riabouchinski giving the sustentation and also the horizontal resistance obtained from planes of different curvatures at different tilts. At a tilt of 7 degrees, which is very practical, the proportions are found to be as follows: For a flat plane, 215 sustentation to 24 resistance; for a plane with a hollow 1-30 as deep as the fore-and-aft extension of the plane, 283 sustentation to 22 resistance; similarly, for a hollow 1-20, the figures are 310 to 32; for 1-16 they are 386 to 44; for 1-12, 390 to 45, and for a 1-8 curvature the sustentation rises to 440, but re-

sistance at the same time rises to the very high figure of 81.

The net result is therefore that resistance to propulsion rises considerably faster than sustentation, when the curvature exceeds 1-30, but that, nevertheless, the weight-supporting qualities of a given area can be multiplied almost by 4 by increasing the curvature to 1-8. And, as the designer has the choice between reducing the resistance against propulsion by reducing his area and curvatures, the chances for capable engineers are immense.

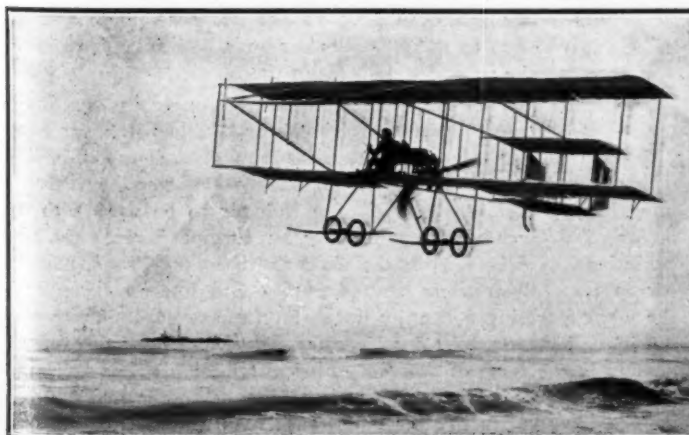
Two biplanes whose dimensions are known, having been stated authoritatively by the owners, illustrate how wide the variations are which are consistent with successful flight. One belonging to Maurice Farman has 1-50 curvature, 45 square meters area (484.37 square feet), carries 600 kilos (1322.77 pounds) all up, or 13.833 kilos per square meter (2.73 pounds per square foot), and it reaches a speed of 85 kilometers (50 miles) per hour. The other, belonging to R. Esnault Pelterie, has 1-12 curvature, 23 square meters area (247.57 square feet), while it also carries 600 kilos (1322.77 pounds) all up, or 26.100 kilos per square meter (5.34 pounds per square foot), but despite of its smaller area it cannot make a speed in excess of 70 kilometers per hour.

Aviation Machines at the Meets

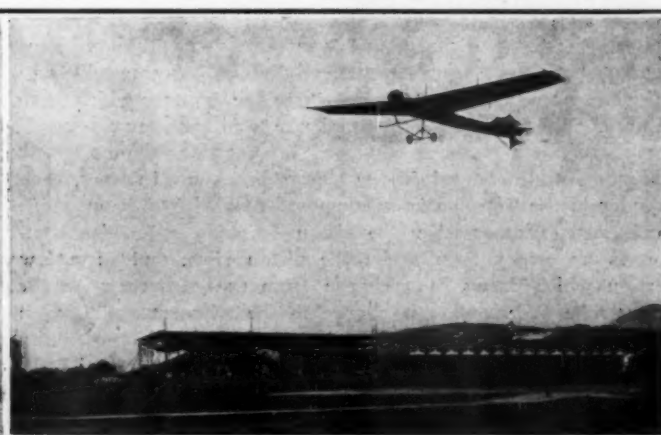
NO new construction feature enabling aeroplanes to brave unfavorable weather or permitting substantial design, with a minimum of guy wires and struts, has been brought to public attention at the aviation meets during the past two years, but by lengthening, lightening and reducing the wind-catch of tails, the types shown at the 1908 meet at Rheims have been made steadier fliers in fair weather.

Disciples of Henry Farman carried off the honors at the recent meet at Nice on the Mediterranean Sea, as well as in the

London-Manchester flight by Paulhan. In both cases, the winner as well as most of the non-winners flew Farman biplanes. The characteristics of these are the single-plane "tilter"—as the elevating or tilting rudder might perhaps be called, for short—the tiller, either single or double, placed with the trailing planes far in the rear of the main planes, the single rear propeller, and the adjustable rear-edge flops attached to the end sections of the main planes. One of Farman's latest models has the upper plane extending beyond the lower plane at both ends.



Effimoff, Winner at Nice Meet, Began Flying in December



Latham in His Monoplane at the Nice Meet

Engineering Digest

A carefully abstracted digest of accounts of engineering activities as they are reported in society transactions and technical papers throughout the world.

The Society for Smokeless Automobile Traffic at 21 Bülowstrasse, Berlin, recently exhibited an apparatus guaranteed to accomplish the complete combustion of the smoke and gases arising from an over-supply of lubricating oil in the operation of internal-combustion engines. The apparatus is attached to the exhaust pipe, and the combustion is obtained by means of a suitable device for admitting fresh air and mixing it with the exhaust, while ignition of this mixture is secured by means of the flame accompanying the exhaust. The utility of the apparatus is demonstrated by the company in Berlin on an automobile, and it is found that both the odor and the blue smoke resulting from bad oil or bad regulation of the oil feed are obviated.—*Allgemeine Automobil Zeitung*.

Complete statistics have been collected in the German Empire showing just how many automobiles and motorcycles are in use in each of the provinces, what their power is, and for what purposes they are employed. But comparison with similar data for 1909, 1908 and 1907, it is shown that the increase from year to year has been at the rate of about 35 per cent each year for automobiles, but much less pronounced for motorcycles. The latest figures are in brief as follows, for the whole Empire: 22,283 motorcycles and 24,639 automobiles, and of the latter 12,595 have less than or not over 8-horsepower, 7,341 up to 16-horsepower, 4,695 up to 40-horsepower and 98 more than 40-horsepower. Industry and commerce employ 7,152 automobiles and 11,997 motorcycles; sport and pleasure claim 10,562 automobiles and 7,569 cycles; the professions and special avocations make use of 3,175 vehicles and 2,255 cycles; 3,285 vehicles are in public service for hire, but no motorcycles; 131 cycles and 328 automobiles are used in government service by postal, police and railway employees, while agriculture and forestry make use of 331 cycles and 137 automobiles.—*Allgemeine Automobil Zeitung*.

The two or four-cylinder Cote motor is of the two-cycle type. It was brought out two years ago, and has lately attracted attention in France, where a vogue for valveless motors is bestirring the designers. In the Cote motor the lower enlarged portion of one cylinder, in which works the enlarged lower portion of the corresponding piston, is utilized for the preparation of the explosive charge for the next explosion in the adjacent cylinder, and vice versa. The charge is driven from each auxiliary cylinder chamber into a transverse sleeve divided concentrically into two transfer posts, and from there into the cylinder which is to be fired. Thus, neither is the crankcase used for compression of the charge, nor is there employed an auxiliary cylinder with separate piston from which the charge is taken. In brief, each cylinder in the Cote motor is composed of a high portion which works and exhausts when the piston descends and which compresses its own charge, when the piston rises, and of a low portion which draws in a charge from the carburetor on the downstroke and feeds this charge to the adjacent cylinder on the upstroke. The construction details indicate the possibility of economical manufacture, while tests conducted by the A. C. of France show fuel economy and power efficiency.—*Omnia*, April 16.

Every time some new manifestation of human insight buds

forth, the people get busy swaddling the new life with regulations, says Mortimer-Mégret in *La Pratique*, referring to the enforcement of antiquated automobile traffic rules and projected restrictions upon aviators.

It is usually assumed that the valve spring for a four-cylinder motor should be calculated so as to produce a certain pressure per square inch or square centimeter in the valve seats, such as, for example, 40 pounds per square inch, and also that it is advisable to shape the cams so abruptly that the spring in action passes quickly from its maximum to its seating tension. With a view to obtaining a minimum of noise and wear of the valve mechanism, and the valve seats as well, K. Praetorius, of Charlottenburg, Germany, calculates graphically the minimum strength required of a valve spring for given dimensions of a motor and arrives at a shape for cams by which the expansion of the spring is made more gradual without interfering with the proper opening and closing time for the valves.—*Der Motorwagen*, April 10.

Usually automobile fire engines are fitted with pressure pumps of the reciprocating type. *Le Génie Civil* for April 2 describes one in which the motor, when not used for driving the vehicle, is connected by a multiplying gear with a centrifugal pump, giving the latter a speed of 2000 revolutions per minute. The designer, Karl Metz, of Karlsruhe, Germany, places a large water reservoir behind the driver's seat on a truck chassis, and the centrifugal pump, which is located in the rear, is thrown into mesh with the first pinion of the transmission, as soon as the vehicle arrives at the place of fire. By means of two pipes, the pump may draw its stream of water either from the reservoir or from a suction pipe to be connected with another source of supply, and the reservoir may be filled either by the pump through a third pipe or from a street hydrant with pressure, by attachment on either side of the vehicle to a crosswise feed conduit on top of the reservoir. The pump uses 15 to 30-horsepower to discharge 600 to 800 liters per minute, at a pressure of 6 to 10 kilograms per square centimeter and can throw a stream of 19 millimeters diameter a distance of 50 meters, or else, by different attachments of discharge hose, three streams of 12 millimeters diameter a distance of 40 meters. The motor gives 35 to 40-horsepower at 900 to 1,200 revolutions per minute and a vehicle speed of 25 to 30 kilometers per hour. With ladder, pipes and hose reel the vehicle weighs about three tons.

By means of a series of experiments with one cellular radiator and two tubular radiators, the engineer Walther Freiherr von Doblhoff has reached confirmation for a number of theoretically deduced formulas by which the automobile designer may determine the dimensions required of a radiator to be used with a motor of a given power and under any ordinary given set of conditions. Every step in the author's reasoning, is accounted for in text, illustrations, plotted curves and interim formulas, the whole forming a lengthy document running through several issues of the *Zeitschrift des Vereines Deutscher Ingenieure*, concluding in the issue of April 2. Fine distribution of air and air cooling surfaces, with considerable resistance to the passage of the air, is found of greater importance than fine distribution of cooling water. It is concluded to be a false principle to let as

much air through the radiator as possible. The two main formulas are:

$$Q = \frac{\theta_1 - r_1}{\frac{1}{F_{st}} \left(\frac{1}{\phi \kappa} + \frac{1}{500 \lambda \rho V_F} \right) + \frac{1}{2W}}$$

and

$$F_{st} = \frac{\frac{1}{\phi \kappa} + \frac{1}{500 \lambda \rho V_F}}{\frac{\theta_1 - r_1}{1000 N} = \frac{1}{2W}}$$

In these formulas the symbols denote as follows:

Q = the calorie hours disposed of.

F_{st} = the front projected area of radiator.

V_F = the speed of the vehicle in kilometer-hours.

φ = the ratio in the chosen type of radiator between entire cooling area and the front projected area F_{st}.

κ = the value in the chosen type of radiator of the coefficient of heat disposal.

λ = the ratio between the smallest area of air channels and the front projected area of radiator F_{st}.

ρ = the value of the speed coefficient for the air current in the radiator; that is, the ratio between speed of air current in relation to radiator and the speed of vehicle. This is usually about equal to 1, but may be reduced when air channels are too small.

θ₁ = the highest permissible temperature centigrade of the cooling water.

r₁ = the temperature centigrade to which water is to be reduced.

N = the number of horse-power of the motor.

W = the mass of circulating water in kilogram-hours.

These formulas apply to a radiator operated without a fan. If any ventilation means are used, there must be substituted for V_F another value, which the author calls the normal (*ideelle*) vehicle speed, being the speed at which the radiator, other things equal, carries away the same number of calories with fan as without fan.

"The competition in the foundry business in the United States would be ruinous, if it were not for the 'sleeping customers' who still pay old prices because they are unaware of the economies which technical progress has introduced in the steel-casting art." A German foundryman from New York State confides this secret to his countrymen in an elaborate address on foundry work in America reported in *extenso* in a recent number of *Stahl und Eisen*.

Patent lawyers do not share technical insight with the engineer—only technical talk and terms.—*Allgemeine Ingenieure Zeitung*.

A complete directory of the machine and metal industries of Austria-Hungary, giving 60,000 addresses and the working capital and other financial details with regard to each corporation, is contained in the 1910 Annual of Austrian Mining and Smelting, Machine and Metalware Industries, published by Rudolf Hanel, "Kompassverlag," Vienna. Price 7.50 Kronen (\$1.50); 1,100 pages.

In No. 476 of the "Sammlung Götschen," Leipsic, Prof. Hermann Wilda offers the first volume of a work dealing with practical uses of all materials adapted for machines, machine tools and electrotechnical purposes. Special attention is given to the employment of modern steel alloys for tools. The book contains a convenient glossary, giving the equivalent terms of steel and iron lore in six languages. The price in Germany is 80 pfennig—20 cents.

Valveless motors, hydraulic transmissions and brakes acting on the front wheels are the features predicted for the automobile of to-morrow by C. Faroux, editor of *La Vie Automobile*. Never have so many Daimler cars been seen in France, says this

authority, as since this company adopted the Knight-Minerva motor. It is a fact against which nothing will prevail. The public likes them, and what the public wants it gets. The Panhard company, slow to move, has adopted this type, and the other great houses have quickly comprehended the necessity for getting up a valveless motor of their own. The Mercedes people, after working on the problem for three years, will spring a valveless sensation in 1911. The Delaunay-Belleville, the Renault, the Delahaye, the Bayard-Clément, the Hotchkiss will not remain behind. Ten of the great automobile companies of the world are contemplating and working on hydraulic transmissions. Louis Renault has for several years filed patent after patent in this line of construction, and automobile history shows that Louis Renault has never been mistaken about the trend of developments.

Air Resistance to Racing Cars

Public interest in aviation and propellers for aeroplanes has brought to the surface in France, the land of mathematical deductions as the means for guiding practical work, many questions relating to the air resistances against automobiles. A spirited controversy has arisen with regard to the possibility of reducing the atmospheric resistance against racing cars by placing a suitable traction-helix in front of the car, to act presumably not only by direct traction effect but also by scattering the atmosphere, so that the latter will strike the body of the car with diminished force. The arguments pro and contra bid fair to continue until proven or disproven by practical demonstration. The editor of *La Vie Automobile* in a recent issue offers a calculation of the air resistance overcome by the Benz racer of 250 horsepower in the performance when this vehicle made one mile in 27 33/100 seconds. "This car," he writes, "at first had an ordinary hood and a straight-front radiator. Then a wind-splitting front was substituted, but it was especially the subsequent modifications of its rear forms which produced extraordinary results. The tapering of the rear to the shape of an armor-piercing projectile made the vehicle with one bound gain 12 kilometers per hour. But the power absorbed by the atmosphere remains considerable, as may be seen from a simple yet sufficiently exact calculation.

"In running order the vehicle weighs 1350 kilograms. Its speed on the occasion referred to was 59 meters per second, and the air resistance at this speed comprises two elements. One is independent of the speed, being the product of the car's weight with the coefficient of rolling friction, which is about equal to 12 kilos per thousand kilos of car weight. The other is proportionate to the square of the speed, multiplied by a certain coefficient, which the special shape of the Benz car permits one to place at 0.07.

"With these figures, the unit of resistance becomes, thus:
Resistance = (1.35 × 12) + (0.07 × 59 × 59) = 259.87 kilograms.

"The product of this unit with the speed in meters per second will then equal the work performed at the wheel rims in kilogram-meters.

259.87 kilos × 59 meters = 15,333 kilogram-meters.
which is the equivalent of about 204 horsepower."

According to the editor of *La Vie Automobile*, the power consumed in air resistance at a speed of 212 kilometers per hour, with a car shaped as favorably as possible, therefore amounts to 191 horsepower out of a total of 250, and this, by the way, gives an efficiency in the power economy of the car of about 80 per cent. But it is evident that the accuracy of the calculation depends largely upon the more or less arbitrary factor, 0.07, chosen to represent the special shape of the vehicle.

A new horsepower-rating formula has been brought out by Louis Lacoïn and is presented in the current number of *Omnia*. This is figured from the cubical capacity of the cylinders, which of course varies with the stroke, so that the final form of the formula takes into account the stroke as well as the bore, also the speed. This formula, which will be given in next week's issue of THE AUTOMOBILE, carries the bore with an exponent less than 2, in which it differs from all previous rating formulas.

Construction Ideas From Designers Abroad

New Longuemare Carbureter

IN the latest product of the famous carbureter builders, the brothers Longuemare, of Paris, a number of distinctly different features are to be found. These include a bypass for heated gases, a novel needle adjusting means, a new idea of gasoline strainers, and some more. The carbureter is shown below in the drawing, a cross section, and in the photograph of the assembled device. In the drawing, it will be noted that there is a separate float chamber, communicating with the bottom of the vaporizing chamber. Inset into the bottom part of the latter is an adjustable nozzle, and the air inlet, which takes the form of a series of round holes through a circular band, the number and size of the openings through which are governed by a sleeve around the exterior, which may be rotated at will.

In the drawing, A is the hollow metal float, into the chamber for which the gasoline flows from above, the movement of the float up and down governing the amount of fuel permitted to enter in the regular way. Before reaching the float chamber, however, the gasoline must pass into a spherical chamber, within which is placed a circular gauze strainer. This strainer is placed around a hollow vertical post, through openings in which the gasoline flows inward and thence downward. The different form of the strainer has an influence upon the cleaning of the same, and its ready removal and insertion for that purpose and after the cleaning is over.

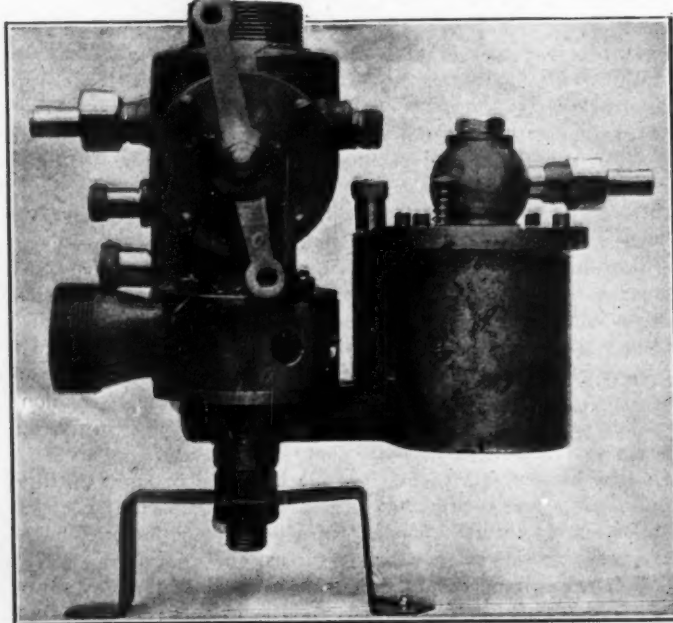
B is the housing for the needle valve G, which projects up through the nozzle F into the vaporizing chamber, which consists of a perfectly vertical, concentric tube with a sort of double cone insert, to give the venturi tube effect. This tube, lettered C, is but a force fit in place, and were it not for the pipe O, could be slid up or down to improve the carburetion effect. The needle G is movable up and down, the adjustment being made from an outside point, namely, the regulating nut K. The latter moves the regulating rod or stem J up and down, with a corresponding motion of the needle down and up; that is, for a downward motion of the rod, the needle moves up and vice versa. In this sliding action, the needle is guided within the housing B, and its quick action is opposed by the spring H. The lever I, pivoted off center, gives the proper motion to the needle. The lower part of the needle is not only widened out, or en-

larged in diameter to fit the sides of the chamber, but it serves a double purpose also in being perforated with small holes through which the gasoline may flow.

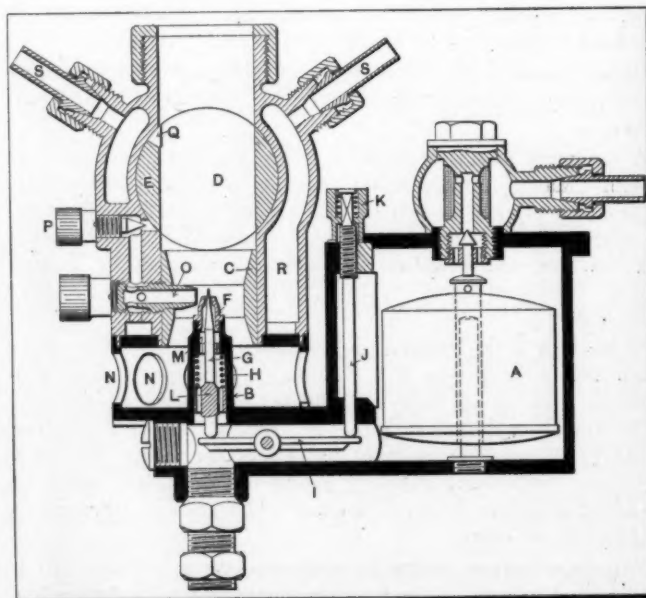
Around the outside of this part of the carbureter is a large annular chamber, through which holes N N give access to the air, while a thin member around the outside of this slides around to partially close or open these holes, thus regulating the amount of air. The outer sleeve is shifted by hand. In passing into the vaporizing chamber, the fuel carries the air, or rather the air carries the fuel up into the passage, which connects to a longitudinal passage at right angles to the former, the latter passage leading to the cylinders. Just at the level of the top of the nozzle is placed the hollow tube O, which communicates with the chamber on that side of the carbureter, this chamber being connected at the top to the inlet pipe, but beyond the throttle valve. This pipe then acts as a bypass around the throttle, and the taper pointed screw P is used to regulate the amount of gas which may thus be shunted. Although the present carbureter comprises but one of these bypasses, the idea is capable of infinite enlargement. By this means, a larger carbureter could be pressed into service, for with proper regulation of the bypasses, as to number and amount of gas allowed to flow, the large size of the vaporizer could be practically nullified. However, the present use is to develop very slow speeds, the bypass permitting some fuel to reach the engine, when the throttle is completely shut off, the speed thus developed being very, very small, according as the adjustment at P is made very small. It will be noted that provision is made for hot water jackets around the entire vaporizing chamber, with the exception only of the side on which the bypass is located.

Dennis Worm-Driven Rear Axle

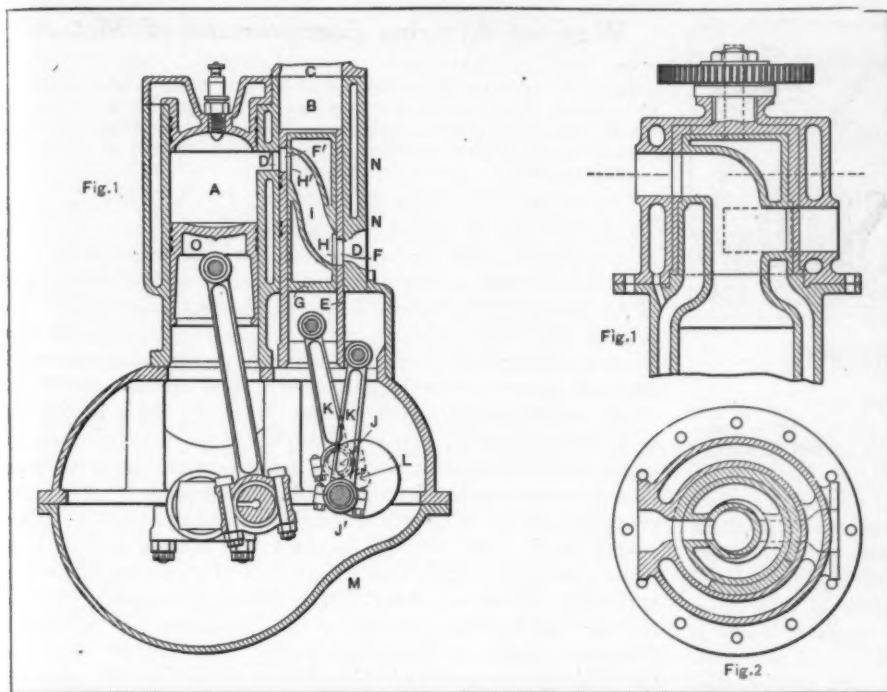
While worm driving has not made a great deal of progress in this country, on the other side, where for commercial vehicle work it received its first and best tryout, it has achieved a fair degree of success, and each month develops a new adherent for this quiet and efficient drive. In the Dennis cars, the drive has it staunchest and most consistent adherent, so it is not strange that the latest product of Dennis Bros., Ltd., of Guilford, Eng., a light 20-horsepower touring car, embodies a worm-driven rear axle.



View of Longuemare Carbureter Showing Air Valve



Section Through New Type of Longuemare (French) Carbureter



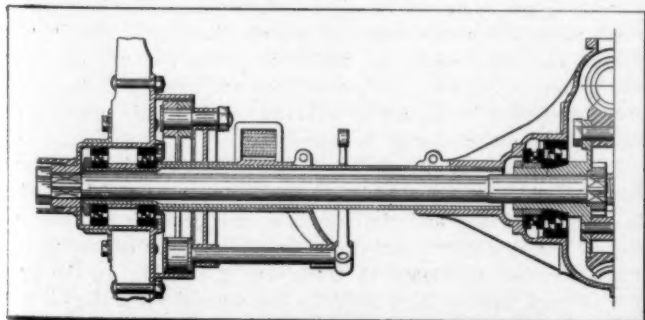
Section Through English Engine with New Form of Valves

This is shown below in section, this being a reproduction of the working drawing. At the extreme right is to be seen the worm and gear, the latter very apparently being made in two halves and bolted together. This step is taken from the point of view of economy of manufacturing costs. Within the bolted-up halves of the gear is found the spur-type of differential, the hollowed-out gear forming a housing for the latter.

The axle is of the semi-floating type, and the bearings between the axle proper and its housing are of special interest, in that the bearings are of the single type, so placed that one comes directly under the load. The brakes are of the internal expanding form, and the brake drum is made a part of the hub, the same being a nice piece of designing. From the engine, the drive back to this axle is through a four-speed gear box, with direct drive on the fourth or top speed. In this gear box, ball-bearings are used exclusively, these, where need is for two, being spaced very widely, as in the case of the axle shown.

Another English Slide Valve

Following the marked success of the Knight engine in England, the English have been prolific producers of engines with valves differing from the ordinary poppet type. These have included sliding sleeves, piston valves, disc valves, valves of the rotary type, of the reciprocating type, and many more. The latest effort in this very interesting line is that shown herewith, the patent drawing being reproduced. In this, a form of trunk piston is used within a sliding sleeve, both the piston and sleeve



Dennis Worm-Driven Rear Axle for Touring Car Use

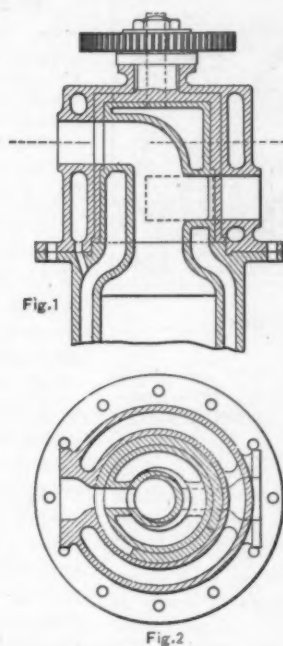
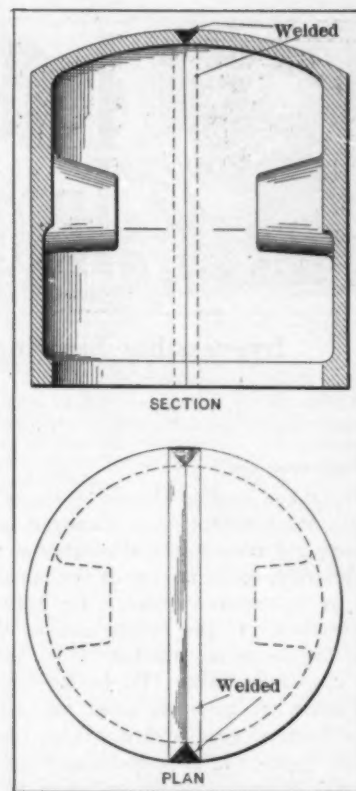


Fig. 1

Fig. 2



Steel Piston from France

being actuated by means of eccentrics off of a secondary shaft, a la Knight. The two valves, for such they are despite their form, are placed in an offset portion of the cylinder casting, conforming to the L type of cylinder casting offset.

As the drawing shows, there are two slots in the opposite walls of the sleeve, which is, in addition, open top and bottom. The open bottom is not used, but the open top is, the opening C being the free exhaust, or the place where the exhaust pipe is attached. The inlet operates through the registering of the diagonal slot through the inlet piston with the two slots in the sleeve, the latter at this moment—according to the correct timing—being just opposite the combustion chamber passage, thus giving the inlet gases a free, though slightly inclined, passage from the pipe upward to the combustion chamber.

At the right of the drawing, in the smaller figures, is shown a modification of this same idea, this being in the form of a pair of concentric rotating discs or shells. The action is the same and so is the shape of the two discs, the motion of rotation of these, located in the head, being substituted for the more complicated one of reciprocation in a separate chamber.

Welded Steel Pistons, Now

Steel pistons have long been a dream of the successful designer, but, for various reasons, those which have been tried have not been a howling success. In racing cars, these have found a somewhat limited use, being cut, in that case, from a solid steel bar, and not made from a casting. This process is too expensive for use on ordinary touring cars, so that form is not useful. Nevertheless, the idea that steel pistons were good has persisted. The very latest development in this line is that shown above, being a pair of pressed steel, half-round shells, electrically or otherwise welded together to form a whole-circular piston.

This makes the steel piston not only light in weight, an advantage always claimed, but also cheap to produce, of a very homogeneous metal, which has a very uniform thickness. With so many advantages, and few, if any, apparent disadvantages, the steel piston may soon come into its rights. If this means longer life, as engineers claim, it will be a good move.



Irreversible Steering Explained

Editor THE AUTOMOBILE:

[2,256]—What is an irreversible steering gear? Will you please explain this in an early issue of your excellent paper, "The Automobile"?
A SUBSCRIBER.

Fitzgerald, Ga.

When any combination of gears, or train of gears, or gearing is of such a nature or so arranged that motion in one direction is properly transmitted through the whole train or throughout the gearing, while motion in the opposite direction is not or will not be transmitted through the train, the whole is said to be irreversible. In the simple case of two spur gears in mesh, if one (A) be moved, the other (B) will also move just as freely. So, too, if the other (B) be moved, the one (A) will respond and move just as freely as did the last gear in the first case (B). This form of gear is then strictly reversible, since motion given to any part of it, is properly and easily transmitted by all other parts. If now a worm and gear be used as an example, motion of the worm will turn the gear, but the opposite of this is not so, that is, turning the wheel will not turn the worm. To be exact, it will turn it a little according to the shape, size, and character of the threads of the worm and the teeth of the gear, but all of the motion given to the gear will not be transmitted through the worm, in fact, but a very small fraction.

Now, most steering gears are composed of an internal and external worm, a worm and gear, worm and nut, or worm and wheel, all including the nearly irreversible worm, so that the statement that a steering gear is irreversible only means that it includes a worm in its make-up. The word irreversible, as applied to steering gears, is somewhat of a misnomer, for as explained above, all such steering gears are reversible, but to a very limited extent. A more correct word for use in this connection would be semi-irreversible or the phrase, partly irreversible, or even, nearly irreversible.

Gears and Gear Cutting Methods

Editor THE AUTOMOBILE:

[2,257]—What kind of a gear would mesh with the "wide, strong gear" shown on page 327 of the February 10, 1910, issue of "The Automobile," in the article relating to gear and pinion failures?
ALLEGHENY, PA. MURRY FAHNESTOCK.

While the sketch alluded to by this writer is a little bit vague, the appearance seems to identify it as one of the new gears with stub teeth. This is a new form of gear which has been brought out by the makers of a gear-cutting machine, and is especially adapted to that machine's work. The gear has a different angle of obliquity, or angle which the common tangent to the teeth, when they are in contact at the pitch point makes with a line joining the centers of the wheels. This angle, which, in the ordinary involute form of tooth, is 15 deg. or close to it, is in the stub tooth made nearly 21, 20 1-2 to be exact. The result is that the teeth, whose proportions are determined somewhat closely by this angle are materially altered. In the stub tooth, the result is a short, fat, and, consequently, strong tooth. Any stub tooth of the same pitch will mesh with this one. Thus, if it were of 6-8 pitch—all stub-tooth gears have hyphenated pitches on that order—any gear of 6-8 pitch would mesh with it properly.

This form of gear tooth is meeting with great success, and is being used to an increasing extent in the automobile business.

Ways of Altering Compression of Motors

Editor THE AUTOMOBILE:

[2,258]—I wish to know how I may be able to alter the compression in my motor. It is not high enough to suit me and I am of the opinion that I will realize more power if I increase the compression quite a little.
JOS. F. O'DAY.

Brooklyn, N. Y.

This matter was very well handled in *Omnia*, Paris, April 23. The gist of the discussion was as follows:

When it is desired to increase the compression the most general method, declares the author, is to attach a plate to the head of the piston. This, however, has the distinct disadvantage, especially for a single-cylinder motor, of upsetting the equilibrium. To overcome this it is necessary to touch up the flywheels, which generally carry counterweights. For a four-cylinder motor the inconvenience is less, except in cases where the motor is balanced cylinder by cylinder. There is still the disadvantage of an increase in the weight of the reciprocating parts which is likely to reduce the number of revolutions per minute. A more mechanical method is to machine a special piston with a dome-shaped head. This, however, is costly. A cheaper method is to make a new and longer connecting rod. If the compression has only to be slightly increased a clever smith can lengthen the connecting rod by heat treatment. This, however, is a delicate operation. Compression can be slightly increased by machining the valve plugs until they penetrate further into the cylinder. The angles should be rounded off in order to prevent preignition, and naturally enough space should be left to allow of the normal lift of the valves. A method often employed is to plane the lower face of the cylinders, or the upper face of the crankcase, thus bringing the head of the piston nearer the top of the cylinder.

Comparison may be decreased by the use of dome-shaped valve plugs; by changing the piston for one with an incurved head, or by putting a plate between the bottom of the cylinder and the crankcase. Although compression can be increased by placing a metal plate on the top of the piston, the contrary cannot be done to decrease compression, the piston generally being so thin that any planing of its surface would rob it of necessary strength. It is not advisable to change the connecting rod, for there will be danger of the lower part of the piston touching the top of the crankcase. If the metal is taken off the piston to overcome this the balance of the motor will be destroyed.—*Omnia*, Paris, April 23.

Oiling Practice with Disc Clutches

Editor THE AUTOMOBILE:

[2,259]—My automobile has a friction clutch of metal, made one steel disc, then one brass, then steel, then brass, and finally steel. All these are about a foot in diameter. I wore out one brass ring last year, and had to get a new one. The brass rings carry cork inserts. Should I oil the clutch or not? Please answer through the columns of "The Automobile."
R.

Montgomery, Pa.

Doubtless reference is had to disc clutches, as the one described in the letter above would be a five-disc clutch. As to lubrication of these clutches, opinions differ, some experts saying that no oil is preferable, while others think that wearing or rubbing parts should be oiled whether in a clutch or somewhere else. The clutch described sounds like that of the Stevens-Duryea car, the makers of which advocate the use of a dry clutch, that is, no oil. If it were not for this fact, the advice would doubtless be to use a light oil, with which practice the majority of makers seem to agree.

The argument against the use of oil is that it makes the clutch slip more than it should, while being of no use whatever when the car is running and the clutch is engaged. It is also said that oil in a disc clutch makes the discs cling, in other words, the clutch does not disengage as quickly as it should. In the presence of cork inserts there really is less necessity for the oil than without them, for the corks furnish the wearing and contact surfaces of the clutch, and not the metal to metal faces.

Very Puzzling Case of Misfiring

Editor THE AUTOMOBILE:

[2,260]—We recently received in trade a Buick Model "10." The motor was not acting at all well and we overhauled it completely, cleaning cylinders, grinding valves, cleaning carbureter, timing valves by marks on flywheel and setting all the distributing and contact points in Remy magneto according to Remy instructions. After car was completely assembled we tried it out on the road. The motor ran beautifully at high rates of speed, but lurched and ran on two rear cylinders only when throttled down. This seemed to indicate magneto or carbureter trouble. First we tried all adjustments of carbureter with no better results (the carbureter is a Model "D" Schebler). Then, following Remy instructions, which read: "If motor misses with spark retarded at slow speed adjust the contact screw, by loosening about one-quarter turn," we adjusted the magneto with no better results. The timing is right, the valves all seat, there are no obstructions or leak in manifold, the magneto gives equal spark to all four cylinders, but still when the engine is throttled down, cylinders one and two do not fire steadily. We changed plugs, putting plugs from 3 and 4 into 1 and 2, but cylinders 1 and 2 still refuse at low speeds while running fine when engine is on full throttle. There is not too much oil in crankcase. In your opinion, what is the trouble?

Chippewa Falls, Wis.

BARKER AUTO COMPANY.

Granting that the valves are right, that the cylinders and combustion chamber are clean, bright, and free from carbon deposits, carbureter clean, timing correct, and spark plugs in good condition, the only thing which can cause the misfiring in the two front cylinders is either a defect in the wires leading to those two cylinders, or a defect in the fuel supply to the same two. Since the trouble has been proven not to lie in the valves, timing, spark plugs, or carbureter, and has been isolated in the two front cylinders, and that too, only at slow speed, it is a fair assumption that the wires to the two cylinders in question may have defective insulation so as to cause a short circuit, which would deprive the cylinders of a spark; may be broken but with the ends held together at smooth speeds, but jarred apart at slow speed; may be worn somewhere and jarred against metal at slow speeds, etc. Or the inlet pipe to those two cylinders may be clogged with waste or something of that sort. It is even a possibility that the timing points in the magneto, which connect with the two bad cylinders, may be somewhat worn. In any case, to fix this trouble, confine your attention strictly to the wiring, fuel supply, and exhaust system of the two cylinders which have gone wrong.

Handling Liquid Carbonic Gas

Editor THE AUTOMOBILE:

[2,261]—Will you please advise me as to the best method of handling carbonic acid gas to recharge little drums with it for tire inflation? In my business I handle 20 and 50-pound drums of this liquid carbonic gas, and considering the time and expense of handling it, it is out of the question for tire purposes, unless I can recharge them myself. Will you kindly tell me of some way in which to do this at small expense?

F. WEHNER.

Frostburg, Md.

Granting that the gas in the large tanks is at a high pressure, the only caution necessary in transferring it to the smaller drums is that any increase in the temperature will increase the volume of the gas, that is with a constant pressure, while any reduction in the pressure will also increase the volume. The variation in the volume with changes in the temperature is exact and measurable, the variation being .002061 per degree Fahr. above 32 deg. Fahr., the volume at 32 being considered as 1.0. That is, taking the whole volume, each degree rise above the basic temperature will increase the volume by 2-10 of 1 per cent.

Now, if the connection be made from the outlet of the large drum to the outlet (inlet) of the smaller one which is to be filled, through a metal hose, with a valve at each end, the work may be done very rapidly and economically, simply connecting the hose, opening one valve so as to fill the hose, then opening the other and letting the gas expand into the small tank. In case it is desired to fill the smaller tank at a reduced pressure, one of the valves should be a pressure-reducing valve, or both of them may be, the reduction being made in two operations.



Permanent Black Lacquer for Brass

Editor THE AUTOMOBILE:

[2,262]—Recently in the columns of "The Automobile" there was given a formula for making a lacquer for brass work. Now, I would like to know if this lacquer will make a permanent and lasting finish for the bright brass work? I have a Model 10 B Buick with a toy tonneau and would like to have you advise me as to applying this formula to my car, as I get tired of constantly polishing the brass work. In the article in which this lacquer was given, you failed to state how to apply it.

LOYD H. JORDAN.

Gordon, Neb.

The lacquer in question is just as permanent as a coat of paint, or of varnish, or any similar coating, which weather, water, acids, and similar substances may wear off, or which will wear off in time, even when protected from these things, that is, in say three years.

To apply the lacquer, the body of the metal to be darkened is cleaned to a dull but very clean surface. Then, the lacquer is applied in a thin even coat with any form of fine brush. In short, it is applied just as varnish would be, except that the unusually quiet conditions and unusual care necessary with varnish is not necessary with this. The greater the care used, however, the better and more satisfactory will be the result.

Since this receipt seems to have aroused quite a little interest, it will be repeated for the benefit of those who missed the issue in which it occurred, namely, March 17, 1910. The two receipts are as follows: Dissolve one-half pound of best pale shellac in one gallon cold spirits of wine (so-called). When the shellac is dissolving, agitate it very thoroughly. After mixing, allow it to stand, then filter and bottle. It must be kept from the light as that would make it darker, this being a light lacquer. Now to make a dead black lacquer or finish for similar work, this may be colored black, or the following receipt may be mixed instead: Fuse three pounds of Egyptian asphaltum. When liquid, add one-half pound of shellac and one gallon of turpentine. The latter formula will give the dead black finish now so popular. The quantity, of course, may be regulated to meet the necessities of the case.

Cleaning Out Troublesome Carbon

Editor THE AUTOMOBILE:

[2,263]—I am a constant reader of "The Automobile" and write to ask that you tell me how I can take the carbon out of my cylinders without tearing them down. They are not so very bad, but I would like to keep them as clean as possible, if there is some way of doing this easily.

Ellinwood, Kan.

A READER.

If the cylinders are not very bad, and this is just a matter of having them in the best possible shape, a liquid or powder decarbonizer should do the work very nicely. These are many in number, but the action of all of them is to loosen up the carbon, so that it is blown out by the exhaust the next time the engine is run. Either that or the stuff is dissolved in a liquid which may be drained off from the engine; then when the cylinders have been dried out, the engine is ready to run, and also free from carbon. You will find a number of these decarbonizers mentioned in the advertising columns of THE AUTOMOBILE, and should have no trouble in selecting a suitable one from among them.

Helpful Hints for the Man Who Drives

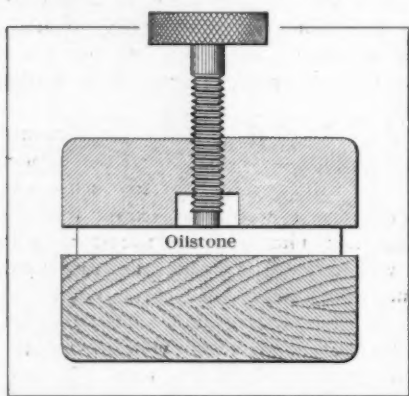
EVERY amateur should learn to grind in his own valves, for this little job is one that should not be entrusted to every Tom, Dick and Harry who claims to know how to do it. Doing the work oneself, a person is sure that it is done right. This is a job which does not require a great deal of mechanical skill, but on the other hand, it does call for a lot of patience.

Before grinding the valve must be relieved from the pressure of its spring. In many engines the valve seat and spring are contained in a cage that is easily removed, and the detaching of the spring from the stem is an easy matter. When the valve seat is integral with the cylinder, the spring may be compressed by means of a special tool, or by a flat metal bar used as a lever. The valve may be taken out through the valve opening.

Finely powdered emery mixed with machine oil is a satisfactory abrasive for grinding, but whatever is used, great care must be taken to keep it out of the cylinder and away from the bearing surfaces. The passage between the valve pocket and cylinder should be tightly plugged with cotton waste, a string

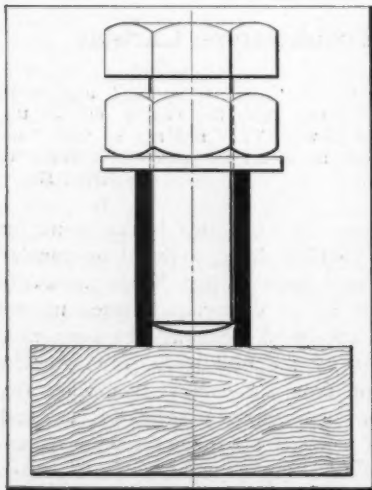
tied to it facilitating its removal when the work is completed.

For a badly worn valve, the first grinding is done with coarse emery, which is later replaced by a finer grade to give the requisite smoothness. To apply the abrasive, dip the finger tip in machine oil and then in dry emery, the small quantity that adheres being applied to the valve surface. The valve



Grinding Vibrator Screws Correctly

is then replaced on its seat and rotated by means of a screw driver. A bit brace or breast drill may be used, but excellent results may be obtained by means of an 8-inch or 12-inch screw driver with a round grooved handle, which is held between the extended palms. A continuous rotary motion in one direction will tend to wear the valve oval, and it is necessary to turn it first in one direction and then equally in the other. A slight back and forth motion of the hands will give this result, and as only a light pressure is necessary, it should not prove tiresome.



Making a Jack on the Road from a Bolt

In order to preserve the true circular form of the valve and seat, the valve should be lifted after twenty or thirty turns, and replaced on its seat in a new position. To facilitate this, a few turns of a helical spring may be placed in the valve pocket under the disc, its size and strength being such that the valve will be slightly lifted from its seat when pressure is taken off.

When the valve surfaces appear smooth, all traces of the emery should be washed away with gasoline, care being

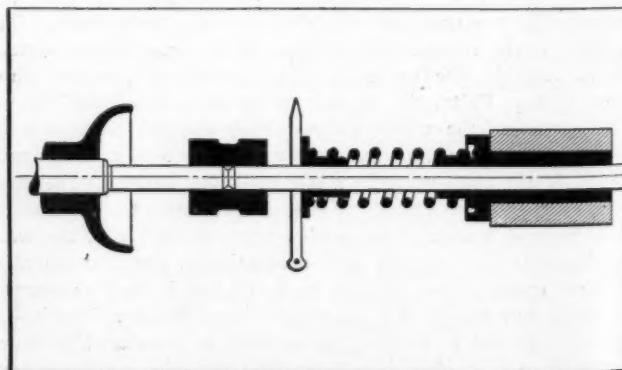
taken that it does not lodge in the cylinder, valve stem and push rod guides, or other bearing parts. To test the fit, make pencil marks on the valve seat, and give the valve a turn or two with the screwdriver; if the fit is correct the marks will be erased.

The replacing of the valve spring is simplified if it is compressed in a vise and bound in the compressed state by light iron or copper wires passed through it lengthways. The spring may then be placed on the valve stem and the holding device attached, after which the wires are cut.

Grinding valves is quite a nice little trick, but another of equal importance, and requiring even more deftness of hand, is the grinding of new points on pitted or worn coil tremblers. A sketch is given herewith showing how this may be done and done right. Take a block of wood with a finished top and set onto or into it a new small oilstone. This should be one of very fine texture. The setting of it into the block is to insure its being perfectly true and level. Then another block should be rigged up so as to set above this, and absolutely parallel to it. In the latter a hole should be tapped the size of the vibrators of the coil. Then to point a vibrator, screw it into the upper block, rub back and forth, or in a circular direction, until the desired result is obtained. The block holding it being square with the oilstone will insure the face being square with the axis.

Very often a motorist gets caught out on the road by some minor accident, some little part breaking, the lack of a repair or supply part for which will prevent the running of the car. Amateurs should carry a good stock of replacements to save themselves the humiliation which comes with this, unless they are possessed of an unusual amount of ingenuity. An example of this is shown in the sketch below. A driver broke the pin in his valve motion which retains the valve spring in place. Not having a spare for this, it was impossible to run the engine without it. With a four or six-cylinder engine, this cylinder could have been cut out, thus reaching home, but in this case, the motor has but two cylinders, making the cutting out process practically impossible. Being rather ingenious, the driver hunted through his tool box for something to use in this place, as it was far to the next town. He found he had nothing, not even a wire nail which might have been used, or a cotter pin. Walking along to the next farmhouse, he tried to get something which would answer. After nearly failing, he finally secured a metal meat skewer, which was inserted as the sketch shows, and the engine limped home.

Another stunt was making a jack from an old bolt and nut of large diameter and a piece of scrap tubing. The figure shows how this was done. The tube was set into a block of wood to serve as a base, then the bolt was set on top of that with the nut in place and a washer below it. By screwing the nut down, the bolt-head was raised, carrying with it the load above. This was a bolt of unusually large diameter.



Useful Though Unique Substitute for Valve Stem Key

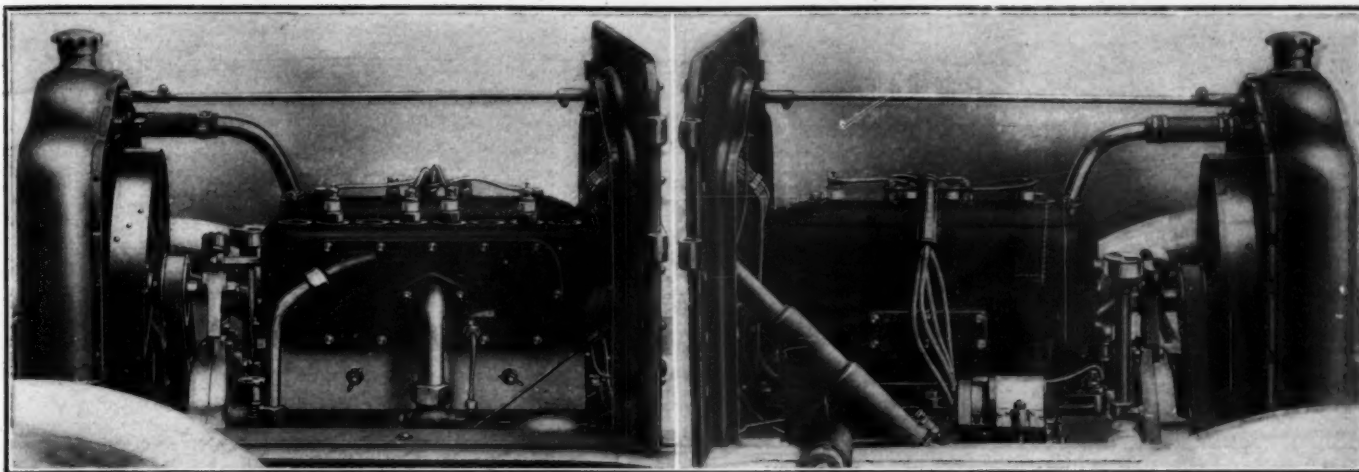


Fig. 1—Left side of motor showing water connections, spark plugs, and freedom from complication. Fig. 2—Right side of motor showing location of magneto, simple and secure method of holding the high-tension wiring system, and how the steering post is fastened to the chassis frame with the shaft passing out above the line of the frame.

White Gasoline Car Brought Up To 1911

FIRST of the manufacturers to make public the details of its models for the coming year, the White Company has just announced its line of steam and gasoline cars for 1911. The White product will include an unusually wide range of models, ranging from touring cars at \$2,000 to trucks at \$3,850 and steam limousines at \$5,000. As is indicated by the fact that the entire 1910 production has been disposed of, the 1910 models, both gasoline and steam, proved eminently satisfactory in every respect, and, therefore, the new models do not show any radical changes from the cars built during the last season. No changes have been made either in the prices or in the designation of the various models.

Considering, first of all, the engine with which the several types of gasoline vehicles are equipped—no noteworthy change has here been made. The engine retains those characteristic features which the White Company introduced a year ago, but every attempt has been made to bring about a state of refinement which is in keeping with the ideals of the company.

The four cylinders are cast en bloc, with the intake and exhaust passages included within the engine casting. As a result of this construction, there are no external manifolds; the intake gases are heated on their way to the cylinders and, owing to the fact that the exhaust passages within the engine casting are water-jacketed, the exhaust gases are cooled as soon as they leave the cylinders and their pressure is thereby reduced. The "long-stroke" principle is retained, the stroke of $5\frac{1}{8}$ inches being approximately $1\frac{1}{4}$ times the bore of $3\frac{3}{4}$ inches. The intake and exhaust valves are all on one side of the engine and are driven by a single camshaft which is contained within the crankcase. The entire valve mechanism is enclosed so that there is no chance for dirt or grit to work their way into the bearing surfaces. On the other hand, the valve springs and the valves themselves

may be readily removed without disturbing any other part. In Fig. 1 may be seen a side-plate held in place by two thumb-screws. By removing this side-plate, the valve springs and valve stems are completely accessible. The valves may readily be removed from above, simply by unscrewing plugs located in the upper part of the valve chambers. The Bosch magneto and the centrifugal water-pump are placed on opposite sides of the engine and are driven independently, so that either may be reached for adjustment without disturbing the other. In Fig. 2 it will be noted that the magneto is located on the opposite side of the engine from the carbureter, so that there is no danger of gasoline igniting by dripping on to the magneto, as might happen where both the magneto and the carbureter are placed on the same side of the engine.

The crankshaft is forged of nickel steel and is of unusually heavy construction. As shown in Fig. 3, there are but two main bearings, which are ball bearings of large diameter. A distinctive feature of the crankshaft construction is the arrangement whereby the connecting-rod bearings are positively lubricated. Oil is pumped from the reservoir by way of a sight-feed placed on the dash to oil pipes which are so located that they drip into grooves on each crank-disc, immediately adjacent to the main bearing. These grooves are cut eccentrically with respect to

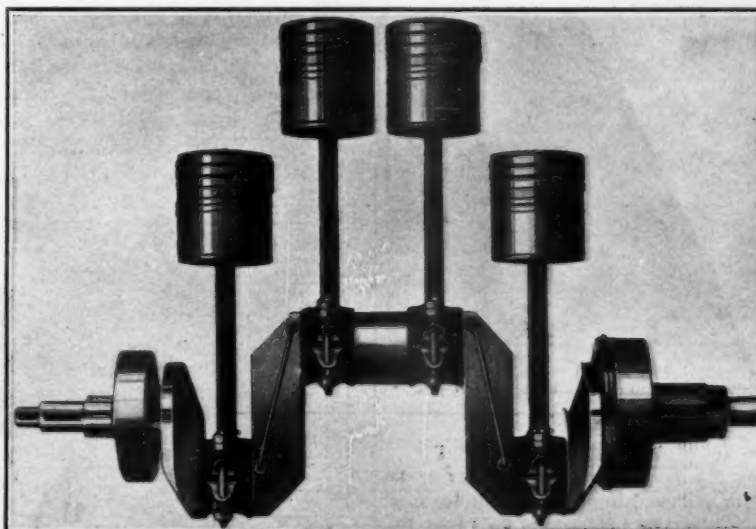


Fig. 3—Crankshaft of substantial section with a very liberal annular type ball bearing at the transmission end, also piping system through which lubricating oil is passed to the crankpin journals.

the crankshaft center, with the result that the oil is driven by centrifugal force to that portion of the groove which is farthest from the center of rotation. The oil then passes by means of oil-ways cut through the crankshaft and oil pipes mounted upon it to the connecting-rod bearings. As will be seen in Fig. 3, these oil pipes are mounted eccentrically on the crankshaft, so that from the time when the oil drips into the grooves on the crank-disc until it reaches the crankshaft bearings it is propelled by centrifugal force. By this scheme, the connecting-

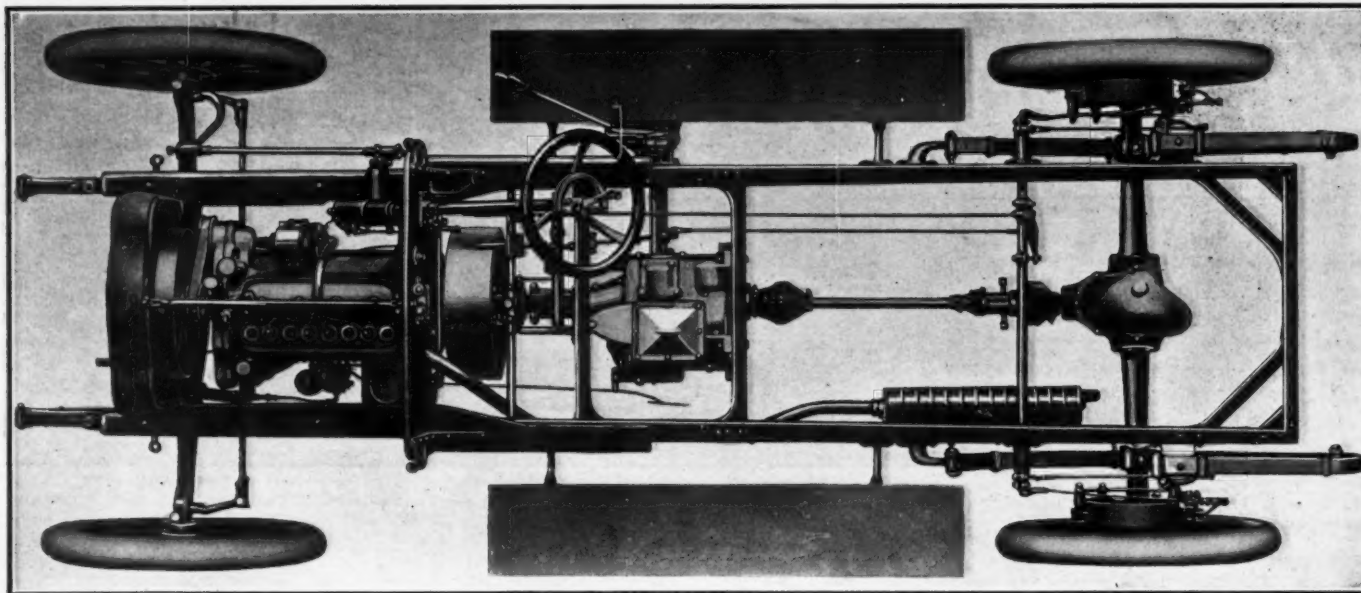


Fig. 4—Looking down on the chassis of Model G-A White Gasoline Car showing the arrangement of power plant, transmission and relating parts, together with size, shape, and bracing of the chrome nickel steel frame of large section.

rod bearings are perfectly lubricated and thus is solved a phase of the lubrication problem, which has caused great trouble to motor-car designers and users.

The crankcase is made in two sections of a special aluminum alloy. The upper section carries all the working parts of the engine. It is hung by three-point suspension on the main frame. The lower section is simply an oil well and is easily removable for inspection of connecting-rods, camshaft, etc., without in any way disturbing the crankshaft bearings. The oil reservoir forms an integral part of the upper section of the crankcase.

Another observed feature of the White construction is the arrangement for relieving the compression in order that the engine may be cranked with a minimum of effort. By means of a small lever located on the dash, the camshaft is shifted endwise, and the exhaust valves are thus held open during the greater part of the compression stroke. As soon as the engine is started, the camshaft is shifted back to its normal position.

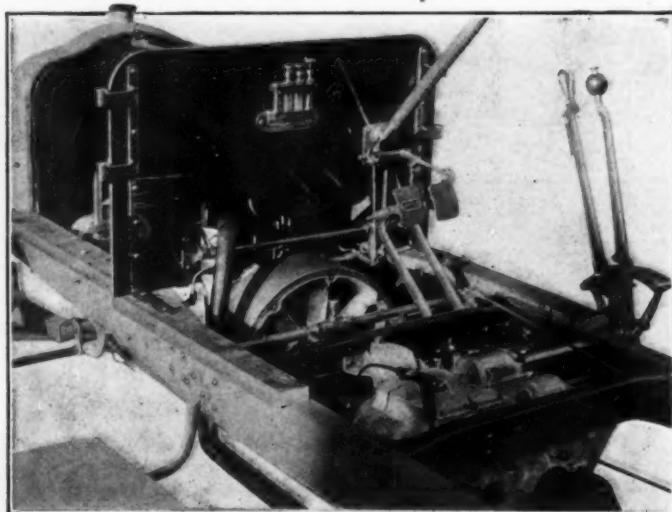


Fig. 5—Showing the dash, control levers and pedals, also cone clutch which is leather faced, employing a special means of holding the leather in the absence of rivets.

The clutch is of the leather-faced cone type, and is of unusually liberal dimensions, giving a working surface as large as is found to be of value. No rivets are used in attaching the leather facing to the clutch spider, the leather being held in place by T-bolts which are countersunk in grooves on the rim of the spider, as shown in Fig. 5.

The transmission is of the selective type and has four forward speeds with direct drive on the third. The gear-shifting mechanism is enclosed within the gearcase and is thus kept well lubricated and free from dirt and grit. A cover-plate, held in place by thumb-screws, may be easily removed, giving access to all parts of the gearcase. The gears are made of chrome-nickel steel and are of unusually liberal dimensions, as regards both width and diameter. The gearcase is located immediately behind the clutch and is supported on cross-members of the frame by three-point suspension. The connection between the clutch and the gearcase is such as to allow for any slight variation in alignment which may occur when the car is traveling over very rough roads.

The drive from the gearcase to the rear axle is by means of a shaft. The rear-axle housing is made in three parts, the central part containing the bevel-gear drive and the differential. This part is fitted with a cover, by removing which ready access is obtained to the gears within. The "live" axle is of chrome-nickel steel. The axle is of the semi-floating type and is fitted throughout with annular ball bearings.

The frame is of heat-treated crucible chrome-nickel steel. In the manufacture of these frames the requisite heat treatment is given by immersing them in baths of molten lead. By this process every part of the frame is raised to the same temperature and, furthermore, the degree of temperature can be absolutely controlled. The frame is narrowed in front of the dash, giving plenty of room to turn the car in the narrowest streets.

The above description applies to each of the two models of the White gasoline car. These two models are known as "G-A" and "G-B," respectively. Model "G-A" has a 110-inch wheel-base, three-quarter elliptic rear springs and 32-by-4 quick-de-

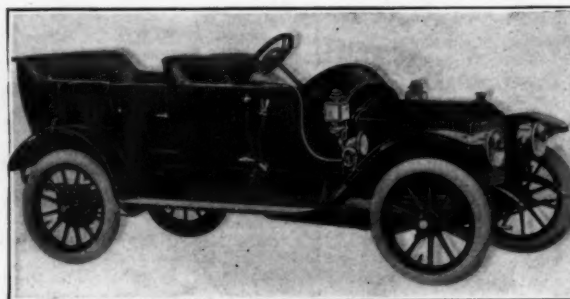


Fig. 6—1911 torpedo type of body with a wide side entrance, unobstructed straight lines, elegant upholstery, and fine finish of all parts of the car

tachable tires. It is fitted either with a 5-passenger touring body with wide rear seat, or with a 4-passenger detachable toy-tonneau body (which may be used in connection with the "domestic-express" body recently described in these columns). It is also fitted with a torpedo body, shown in Fig. 6. With the toy tonneau and torpedo types of body, the steering gear is tuted at a sharper angle than in the touring car and the control levers are in a slightly different position. The model "G-A" touring car and toy tonneau each sell at \$2,000 and the model "G-A" torpedo sells at \$2,250.

Model "G-B" has a wheelbase of 120 inches, is fitted with three-quarter elliptic rear springs, 34 by 4 tires and, in general, it has a somewhat heavier running gear than the model "G-A." Model "G-B" is fitted with an unusually roomy 5-passenger touring body, selling at \$2,500; with limousine body, selling at \$3,600; or with landaulet body, selling at \$3,800.

The White commercial vehicle line for 1911 will consist of a 3-5-ton gasoline truck, a 1½-ton gasoline truck and a 1,500-pound delivery wagon. Both the 3-5-ton and the 1½-ton trucks were described in these columns several months ago. While the running gears of these three types of commercial vehicles vary widely corresponding with the varying loads for which they were designed, much study was devoted to securing the interchangeability of as many as possible of the parts of the three power plants.

The chassis of the 3-5-ton truck sells at \$3,700, the 1½-ton chassis sells at \$3,000, and the chassis of the 1,500-pound delivery wagon at \$2,100. Bodies for these trucks will be furnished to meet the special requirements of any business.

Moon Pathfinder Takes Trail

ST. LOUIS, May 9—Scouting for the route of the first reliability run of the St. Louis Manufacturers and Dealers' Association, E. Percy Noel, of the Automobile Club of St. Louis, started from St. Louis to-night in a Moon car. He will probably be on the road four or five days in an endeavor to map out the best route for the contestants to follow over the three-day itinerary in Missouri and Illinois. The roads in Missouri and Illinois are in extremely bad condition.

The three-day reliability run is the first real touring event ever planned in St. Louis and it is significant of the tremendous awakening of motor interest in St. Louis that already nearly 100 entries are assured the Contest Committee of the Manufacturers and Dealers' Association in charge.

Stevens-Duryea Changes

CHICOPEE FALLS, MASS., May 9—As a result of a meeting of the directors of the Stevens-Duryea Company, Wednesday, several changes are announced, the most important of which was the resignation of Charles C. Hildebrand, who was general sales manager. Mr. Hildebrand has accepted a position as assistant general manager of the Chalmers Company at Detroit. He has been with the Stevens-Duryea Company eight years.

George S. DeLaney has been made general manager of the company, a new office. He was formerly general superintendent. George Baithwait, factory manager, will continue in his old position and will fill the position of general superintendent also.

Coming Events in the Automobiling World

June 20-July 6...Detroit, Mich., Industrial Exposition. Detroit Board of Commerce.
Jan. 7-14, 1911...New York City, Madison Square Garden, Eleventh Annual Show, Pleasure Car Division, Association of Licensed Automobile Manufacturers.
Jan. 17-24, 1911...New York City, Madison Square Garden, Eleventh Annual Show, Commercial Division, A. L. A. M.
Feb. 13-25, 1911...Chicago, Coliseum, Tenth Annual National Automobile Show, N. A. A. M.

Races, Hill-Climbs, Etc.

May 9-11...Harrisburg, Pa., Fourth Annual Reliability Contest to Atlantic City and Return.
May 10-11...New York City, Reliability Run, Trade Association, New York to Atlantic City and Return.
May 12...Cheyenne, Wyo., Motordrome, Cheyenne Motor Club.
May 13-14...Denver, Colo., Race Meet, Overland Park. Denver Press Club.
May 14...Kansas City, Mo., Hill-Climb, Automobile Club of Kansas City.
May 18-19...Norristown, Pa., Third Annual Endurance Run, Norristown to Scranton and Return.
May 19-21...Hartford, Conn., All-Connecticut Reliability Contest.
May 21-22...Bay Ridge, L. I., Club's Endurance Contest Around Long Island, Crescent Athletic Club and Long Island Automobile Club.
May 21-22...Track Race Meet, Memphis, Tenn., Homer C. George, Manager.
May 27, 28-30...Indianapolis, Ind., Automobile Races, Including Championship Events on Motor Speedway.
May 30...Bridgeport, Conn., Hill-Climb up Sport Hill; Automobile Club of Bridgeport.
June 2...New York City, N. Y., Trade Association, Orphans' Day Excursion to Coney Island and Return.
June 4...Worcester, Mass., Fourth Annual Hill-Climb, Dead Horse Hill.
June 6-14...Atlanta, Ga., Reliability Run to New York City, New York Herald and Atlanta Journal.
June 7...New Haven, Conn., Hill-Climb up Shingle Hill, Yale University Automobile Club.
June 11...Wilkesbarre, Pa., Annual Hill-Climb up Giants' Despair, Wilkesbarre Automobile Club.
June 15...Cincinnati, Seventh Annual National Reliability Run for Glidden Trophy, Through the Southwest.
June 16-22...Albany Automobile Club, Albany, N. Y., Sixth Annual Tour to Atlantic City and Return.
June 25...Port Jefferson, Long Island, N. Y., Hill Climbing Contest, Automobile Club of Port Jefferson.
July 4...Indianapolis, Ind., Cobe Trophy Race, Held on Speedway Track, Chicago Automobile Club.
July 4...Wildwood, Pa., North Wildwood Automobile Club, Race Meet and Club Run to Track.
July 18-22...Milwaukee, Reliability Run, Wisconsin State Automobile Association.
July 30...Wildwood, Pa., North Wildwood Automobile Club, Race Meet and Club Run to Track.
Aug. 3-5...Galveston, Tex., Beach Races, Galveston Automobile Club.
Sept. 5...Wildwood, Pa., Speedway, Labor Day Race Meet of North Wildwood A. C.
Sept...Chicago Commercial Car Reliability Contest of Chicago Automobile Club.
Oct. 1...Long Island Motor Parkway, Vanderbilt Cup Race, Wheatley and Massapequa Sweepstakes.
Oct. 8...Philadelphia, Fairmount Park Race, Quaker City Motor Club.
Oct. 15...Long Island Motor Parkway, Grand Prize, Automobile Club of America.

Foreign Shows and Races

May 1-Oct. 1...Vienna, Austria-Hungary, Automobile and Aviation Exposition.
May 25...The American Cup, Argentina, Sociedad Sportiva Argentina, near Buenos Ayres.
May 28-June 9...St. Petersburg, Russia, Automobile Exhibition.
May 29...Copa Catalunya, Voiturette Race of the Royal Automobile Club of Spain, near Barcelona.
June 2-8...Prince Henry (German) Touring Competition.
June 13-18...Scotland, Scottish Reliability Trials.
June 20...French Voiturette Race.
June 21...French Stock-Car Race.
June 22-July 5...Russian Touring Competition, St. Petersburg to Moscow; also Commercial Vehicle Trials.
June 27...Speed Trials at Kiev, Russia.

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SOMETIMES the feeling is acute as it bears upon the question of the dissemination of engineering information as it comes in from the haunts of designers in many lands. That there is a good deal of duplication is true, but, as a rule, a somewhat different angle obtains, so that light is given, even though it may be in relation to the same subject, but from points of view of the several sets of eyes. It would be impossible to report verbatim the doings from abroad as they are set forth in the several very excellent technical papers there printed, without devoting a whole form to the undertaking. To do this would be to encumber the ideas set forth by the "atmosphere" in which they are placed, which atmosphere, while it is very satisfactory to the readers for whom the papers are primarily produced, is scarcely in keeping with the requirements here and, so it seems, an accurate engineering digest will have the virtue of giving in compressed and comprehensive form, it is hoped, all that can be of any service to American engineers, but it does appear as if the busy engineer should have at his disposal a summary of the ideas which are utilized in other lands, in order that he may be able to determine, by comparison, how much better he is doing than his cousin from afar.

ACTIVITY as it is found in the several walks devoted to the automobile is nowhere of greater potential value than that which is measured by the automobile clubs which represent the autoist in the many States of the Union. These clubs, while they have a certain social un-

dertone, are therefore for business; they represent the autoist before the legislative bodies; they are the voice which is loud enough to be heard, and they conduct a systematic campaign which is equally to the point. If a lone autoist is landed in a speed trap, it makes very little difference as to whether or not he is fair prey; his voice has too much of the characteristic of a pigmy to penetrate into the soul of the legislator, who is never moved, excepting by a force sufficient in magnitude to overcome legislative inertia. This same lone autoist becomes as forceful as a whole automobile club the very minute he places himself in the ranks thereof and raises his voice in unison with the rest for the good of all. Betimes the lone autoist overlooks the main contention, wants to become the whole thing, but instead becomes a nuisance. There can only be one president to any club, and he serves, if he serves well, as the trumpet which sounds the battle cry of the corps as a whole. The rank and file of the club is just as much a recognized necessity as the official who occupies the apex of the cone, and it is extremely important that he take the brunt of a real fight backed by the strong arm of real fighters, rather than to be the leader of a flock of geese. Fortunately, there are mighty few flocks of geese with the crest of an automobile club to mark their abiding place, and due to the wise action which is taken by the conservative automobile clubs in the several States, legislation, as it relates to the automobile, is taming down.

ADMITTING that the tire problem has its many important phases along lines which include the questions of quality and cost, assuming that these phases must be dealt with by serious-minded captains of the industry, even so, there are other angles from which the problem must be viewed, and in relation to which something must be done. It is well understood that every tire turned out of even the best equipped establishment devoted to the purpose cannot be up to the high standard set by tire makers for their product, and the part of the tires which fall below this standard are labeled as "seconds." The culls of the plants may be very good, indeed, but if the makers are unable to conscientiously imprint their name upon the seconds, and if they are sold through roundabout channels, ultimately reaching the users of automobiles, will it not be fair to all concerned if these same tires are sold as seconds? If so, why should the dealers in seconds be permitted to obscure the fact in any way whatsoever, in or out of advertising, to the end that owners of automobiles will go away after having purchased such tires with the understanding that a bargain fell their way, and that they were so fortunate as to be able to get more for the money than could be had through normal channels? Would it not be quite right were the tire makers to insist upon it that seconds should be sold as seconds, and as seconds only?

SPRING time comes along bringing better weather and with it better roads, the impression begins to take hold that now is the time for touring the country. So, it is that an increased number of tours and endurance runs are scheduled for the coming month. These partake of all different methods of testing out the new cars, and as such, have, each and every one of them, a direct and favorable influence upon the automobile business as a whole.

New Stock Car Rule Jeopardizes Prizes

CONSIDERABLE comment has been aroused in motordom over the new rule of the A. A. A. which requires that a "stock-car" certificate shall be filed with that body by the manufacturer before stock-cars made by the concern can compete in any event under sanction of the A. A. A.

All the necessary blanks were sent out to the various manufacturers last March, but the returns have been less than half so far.

Some little uncertainty has arisen as to the possibility of enforcing the rule and the intention of the A. A. A. to require its rigid enforcement, but these ideas are without solid foundation.

Chairman S. M. Butler of the Contest Board in commenting upon the situation said: "The conditions are simply these: The greatest line of progress in motoring this year is the proper classification of the stock-car. It is manifestly unfair to the public and to manufacturers who enter bona-fide stock cars in racing and touring events, to have specially made and prepared cars, masquerading as real stock cars, contesting against the legitimate entries.

"For that reason, the present rule was framed and, under it, every manufacturer is obliged to file a detailed certificate showing the standard of the stock cars turned out by him. In case such certificate is not filed, not only is the manufacturer barred from entering his cars under A. A. A. sanction, but agents and private owners are similarly barred.

"Supposing that the maker does not care nor intend to race or tour in competition, and fails to file his certificate, he probably will find that his action has worked a hardship upon agents and representatives who do wish to take part in competitive events.

"In the Around New Jersey Reliability Run which started Tuesday there were thirty-one cars to start and twenty-two of them were made by manufacturers who have not yet filed their certificates. As it would have ruined the run if these cars had been barred from starting, the rule has been modified to a slight degree. The cars mentioned were allowed to start only under the condition that the entrants would notify their factories by wire immediately, requesting that the certificate rule be complied with at once and upon the express agreement that no matter where

they finished in the run, there would be no participation in the prizes or awards unless the necessary certificate was so filed.

"While this slight modification was made for this event, in future unless the certificates are on file before the start of the run, the cars will not be allowed to take part under any condition, even though it means the abandonment of the event."

Mr. Butler said that he believed the twenty-two manufacturers interested in the Around Jersey tour would file their certificates at once.

The rules in relation to stock cars as promulgated by the "Contest Board," were published in THE AUTOMOBILE in the issue of March 3, but for the benefit of those who may not have followed the plan closely, that part of the rules which relates particularly to stock car conditions is repeated briefly as follows:

Stock Car.—"A motor car, the complete description of which, upon the official blank provided for the purpose, has been filed with the main office of the Technical Committee of the Contest Board at least 30 days prior to the date of the contest entered, the quantity production of which bears to the total yearly production of its manufacturer the ratio set forth in the following table, and which is on sale through the regular selling representatives of the manufacturer."

Official blanks for stock car description may be obtained from the chairman of the Contest Board, 437 Fifth avenue, New York City.

Computation in connection with the following table shall be based upon a period of time from July 1 to June 30 the following year. In computing the annual output of a manufacturer, no account shall be taken of his production of taxicabs, delivery wagons or other vehicles designed for commercial use.

At the discretion of the Contest Board any competitor may be required to file a bond of \$5,000 that the entry made by him is a bona fide stock car within the meaning of this definition:

Total Output.	Percentage.	Number of Same Model.
10,000 or more.....	4.5% equaling	450 minimum
8,000 to 9,999.....	5.0% equaling	400 minimum
6,000 to 7,999.....	6.0% equaling	360 minimum
4,000 to 5,999.....	7.0% equaling	280 minimum
2,000 to 3,999.....	8.0% equaling	160 minimum
1,000 to 1,999.....	9.0% equaling	90 minimum
500 to 999.....	10.0% equaling	50 minimum
250 to 499.....	16.0% equaling	40 minimum
100 to 249.....	30.0% equaling	30 minimum
50 to 99.....	50.0% equaling	25 minimum

Explanation.—Percentages are calculated on actual total output. For example: If the total annual output of a manufacturer is 2,500 cars, at least 8 per cent. of said output, or 200 cars, must be of the same model in order to constitute such model a stock car under this definition. The required percentage of output shall in every case be in accordance with the above table and in no event shall it be fewer than 25 cars.

National Association of Manufacturers Meet

The fifteenth annual convention of the association will be held May 16, 17 and 18, inclusive, at the Waldorf Astoria, New York City, and among the extremely important matters which will be discussed will be the prevention of accidents and employers' liability insurance. This important matter has been before the association on former occasions, and despite the struggle which is ever going on to arrive at a satisfactory basis, it is still an open question, and this year the association will undertake to establish a working basis for the future. The question of appliances for preventing accidents to working men and accident indemnity is regarded by the association as its most vital question, both from an economical as well as a humanitarian standpoint. The committee in charge expresses the hope that the convention will be fully attended, and it points out that those who fail to put in an appearance will miss an opportunity to participate in one of the greatest, if not the most interesting, discussion that has come before any of the conventions of the association. The keen interest shown by the association is best evidenced not only by the personnel, but by the vast amount of work done.

John Kirby, Jr., president of the N. Ass. of Mfgs., Dayton, O.; James W. Van Cleave, president of the Bucks Stove & Range Co., St. Louis; D. A. Tompkins, president of D. A. Tompkins Co., Charlotte, N. C.; H. E. Miles, president of Racine-Sattley Co., Racine, Wis.; Henry B. Joy, president of the Packard Motor Car Co., Detroit, and F. C. Schwedtmann, of St. Louis, chairman.

Hopes for Federal Registration

At the regular monthly meeting of the Executive Committee of the A. A. A., presided over by President L. R. Speare, and held Tuesday morning, at National headquarters, 437 Fifth avenue, it was made clear through the report of Chairman Charles Thaddeus Terry that the Legislative Board hopes to have its Federal Registration bill emerge from committee at Washington, D. C.

To-day Chairman Terry will go to the Capital where he will meet the delegates from the Chicago Motor Club, which has in charge the petition containing over 5,000 names, secured in the district from which Congressman Mann hails, he being the chairman of the Interstate and Foreign Commerce Committee, which has had the measure in charge. With the petition will be presented the consensus of opinion of the Chicago legal talent to the effect that the proposed law is constitutional.

From Governor T. M. Campbell, of Texas; Mayor S. J. Hay, of Dallas, and the Board of Trade of the latter city, came an invitation to Chairman S. M. Butler, of the Contest Board, that the Glidden tour visit Texas, and in particular the city of Dallas. Pathfinder Lewis has included the Lone Star State in the route, and he is now touring through Kansas. The entry list, at regular fees, will close May 15, with present indications that this year's contest will exceed all predecessors in point of entries, because much of the country traversed is virgin soil for automobile manufacturers.

Ground Broken for Lozier Factory in Detroit

DETROIT, May 9—Contracts have been let and ground is being broken for the Lozier Motor Co.'s \$2,000,000 plant in St. Clair Heights, an eastern suburb of Detroit, and the Hudson Motor Car Co.'s new \$500,000 factory in the Fairview district. These are but two of the large plants for the manufacture of motor cars and auto parts now in the course of construction in this city, all of which will be in operation before the end of the year.

Considerable speculation is going on as to why work has not started on the General Motors plant, for which a site was purchased several months ago and which, it was announced, would mean an expenditure of \$2,500,000. It is understood, however, that plans are being prepared and that bids will be asked soon.

In the vicinity of the future Hudson plant, 400 men started work this morning, breaking ground for the Anderson Forge & Machine Co.'s new drop-forging plant, which will cost \$750,000 and will be the largest plant of its kind in the world, it is claimed. Automobile crankshafts form a large part of the company's output.

The Modern Machine & Engineering Co. has removed from Cleveland to Detroit, with offices in the Ford Building. This company handles the Potter & Johnson line of automobile machinery, which is used extensively in local car factories. Thomas F. Ahern, general manager of the company, has found

it necessary to spend the greater part of his time in Detroit for the past two years and for this reason it was decided to remove the headquarters here permanently.

The plans for the new Hudson plant, the contract for which was let to the Andrew J. Smith Construction Co., call for a main building, an office building, a testing building, a power house, shipping sheds and a dining hall. The plant will cover 2.8 acres and will have 223,500 square feet of floor space. The main building will be 580 feet long and will have two wings, each about 300 feet long.

In accordance with the action taken by the new directorate of the E-M-F. Co., immediately following its recent purchase by the J. P. Morgan interests, work is about to start on extensive additions to the company's main plant on Piquette avenue. Negotiations for the purchase of the necessary land adjoining the present buildings, which have been in progress for several weeks, were closed last Friday.

It is reported that the Simplex Motor Car Co., of Mishawaka, Ind., makers of the Amplex car, have purchased a factory site along the proposed extension of the Detroit Terminal Railway in Greenfield Township, immediately north of Detroit.

The Beyster-Detroit Motor Car Company, capitalized at \$50,000, has filed notice with the County Clerk of Wayne County, Mich., to increase the capital stock to \$250,000.

Chicago Floral Parade Included 120 Automobiles

CHICAGO, May 10—Forced by the rain to postpone its first annual floral parade from Saturday to Monday, the Chicago Automobile Trade Association succeeded in pulling off a most creditable affair in which 120 motor vehicles ranging from big 5-ton trucks down to motorcycles and including a fair representation of owners competed. Undoubtedly the postponement had its effect upon the parade, for more than 100 cars which had been entered were scratched principally because their owners were unable to participate because of business reasons. However, so far as the general public is concerned these defections did not hurt the parade in the least. All the cars were handsomely decorated with natural and artificial flowers, and all along the route which took in 30 miles of Chicago's boulevards there were crowds of people all of whom evinced a lively interest in the affair. The city of Chicago did its best to help matters along by sending a detail of motorcycle policemen as an escort while the Chicago Association of Commerce showed its power in the commercial section, which was fairly representative of Chicago's business strength in the commercial motor world. The judges of the affair were prominent cartoonists and artists including T. M. Wilder of *Motor Age*, L. D. Bradley of the *Daily News*, C. A. Briggs of the *Tribune*, Ralph Wilder of the *Record-Herald*, and J. G. DeLong of the *Cherry Circle*.

These judges lined the cars up on the midway and made a critical examination of the decoration from their artistic viewpoint. They decided that the best decorated car was an Oldsmobile entered by the local branch which was decorated in Clematis. The car best decorated in natural flowers was an Alco belonging to a private owner, D. J. Joice, who spent nearly \$500 for American Beauty roses. The best float was declared to be a Maxwell, which carried the Scottish bag pipers and was decorated in Scotch colors. In the private owner's class Mrs. Harry McKeller carried off the cup with her Winton car which was decorated in poinsettias, the deep red flower from California. The best electric was the Detroit driven by Miss Yetter which appeared to be propelled by the silent energy of two huge butterflies.

It is the intention of the Chicago Automobile Trade Association to make this event an annual affair and next year it is anticipated that it will be easy work to get more than 500 cars out for the demonstration. This year's parade was ably handled by a committee consisting of John H. Kelly, Henry Paulman and O. G. Temme which went about the organization, as a demonstration, in a business-like manner sending out more than 10,000 letters in its attempt to arouse the motorists of Chicago to the benefits to be derived from participation in the event.

J. D. Maxwell Is Now President

J. D. Maxwell, who has been vice-president and general superintendent of the Maxwell-Briscoe Motor Company, has been chosen president of that company, following the resignation of President Benjamin Briscoe, who assumed the presidency of the United States Motor Company.

For seven years the name of Maxwell has been familiar to those interested in automobiling and J. D. Maxwell has been looked upon as a pioneer and designer of exceptional ability.

All in Readiness for 24-Hour Race

With automobile racing a little slower in the East than elsewhere this Spring, interest in the big twenty-four hour contest which will be decided at Brighton Beach Friday and Saturday, is centered upon the event. Special preparations have been made to accommodate vast crowds and numerous improvements in the course itself and its conveniences have been installed.

Those who have been closest to the project say that the record this year will probably exceed 1,200 miles.

News of the Philadelphia Automobile Trade

PHILADELPHIA, May 9—At a meeting held in the Odd Fellows' Temple last Wednesday afternoon the Philadelphia Licensed Automobile Dealers' Association effected a permanent organization, electing the following officers to serve during the ensuing year: President, J. A. Wister, of the firm of Gawthrop & Wister, Elmore agents; vice-president, E. B. Jackson, of the local Packard company; secretary-treasurer, W. J. Foss, of the Foss-Hughes Motor Car Company, Pierce-Arrow agents. These gentlemen, with A. E. Maltby, manager of the Winton branch, and W. C. Longstreth, of the Pullman agency, constitute the Board of Governors. A constitution and by-laws were adopted and a committee composed of Messrs. Hipple (Chalmers), Jackson (Packard), Smith (Maxwell), Shelden (Premier) and Longstreth (Pullman) was appointed to secure at once a charter for the organization.

The Haynes Auto Company, now located at 211 North Broad street will move to "Marble Row," 326 North Broad street about May 15. The new building is double the size of the present quarters.

Walter S. Shawvan, of Chicago, has signed to manage the sales department of the Stoye-Vogel Auto Company, distributors of the American for Eastern Pennsylvania, New Jersey, Delaware, Maryland and the District of Columbia. Mr. Shawvan comes here direct from the Boston Packard branch.

H. Leslie Walker has joined the sales force of the Hills Mo-

tor Car Company, which handles the Royal Tourist in this city.

Some idea of the phenomenal growth of the automobile in Pennsylvania may be had from the figures issued by the Automobile Bureau of the State Highway Department for the first four months of the present year. Last year the total number of licenses issued was 34,351. Up-to-date the number of 1910 credentials passed out has been 38,970, made up of 22,909 owners, 11,185 chauffeurs, 2,150 dealers, 374 special and 2,352 motorcycles.

George B. Blind, who has been connected with the automobile business in Philadelphia since 1900, has just taken the local agency for the Black Crow car, with headquarters at 2117 North Broad street.

The Regent Garage, one of West Philadelphia's largest automobile storage plants, Fred K. Mears, proprietor, has just installed a charging plant for electric vehicles. It was formerly necessary to run his electrics into the center of the city.

While the treasuries of the various boroughs and townships involved are suffering not a little as a result of this disinterested labor on the part of the Delaware Countians, and the rake-offs of the bucolic Vidocqs have been reduced almost to the vanishing point, motorists hereabouts, attached and unattached, are in high feather, and are showing their appreciation by helping along the work all they can. A notable increase in the membership of the A. C. of D. C. may be ascribed in large part to systematic warning work now carried on by the club.

Swann Law Is in Effect

BALTIMORE, May 9—The new Swann Motor Vehicle Law is now in force, Commissioner of Motor Vehicles John E. George having assumed office last Monday. He has given a contract to the Auto Supply Company for 5,000 sets of automobile tags, there being two tags to each set, and 500 motor bicycle tags. The automobile tags have blue letters on a white background. According to the new law all cars in the State must have tags before July 1.

Pioneer Manufacturer Is Dead

H. V. Becker, one of the pioneers of the automobile industry, died May 3 at his home in Clyde, O. He was 84 years old, but until recently took an active part in business with the Elmore company. Mr. Becker was the father of B. A. and J. H. Becker who were associated with him.

Mosler Company Enjoys Show

A. R. Mosler and Company, makers of the Spitfire spark plug, entertained the employees of that concern with a theatre party last Thursday night. The play was the "Spitfire" and was given at the New Lyceum Theatre. About 250 constituted the party which occupied the balcony of the show house.

Boston Branch for Remy Magneto

The Remy Electric Company of Anderson, Ind., manufacturers of the well-known Remy magneto, have opened a branch distributing office at 214 Pleasant street in the Motor Mart, Boston. The office will be in charge of M. H. Pearson.

Touring Club Entertains

The Touring Club of America entertained representatives of the Metropolitan press at luncheon Monday. The function was well attended. Many prominent speakers were heard.

S. A. E. Gets Coker F. Clarkson

At a meeting of the board of the Society of Automobile Engineers which was held in New York City, on Tuesday, all the formalities leading up to the engagement of Coker F. Clarkson were completed, and he is now in charge of the work of the society. That Mr. Clarkson will have a busy time of it for some months to come, is assured, and it is the aim of President H. E. Coffin to advance the work at a rapid rate. There are many obstacles to be encountered and overcome, and it was the purpose of the society to obtain the services of a secretary who would be able to make headway which is the reason why Mr. Clarkson was approached. The society is to be congratulated in having succeeded in its endeavor to procure the services of so capable a man.

H. A. Bonnell, who has been treasurer of the A. A. A., has been elected assistant general manager of the A. L. A. M. to succeed Coker F. Clarkson. Mr. Bonnell was for several years secretary of the New Jersey Automobile and Motor Club of Newark.

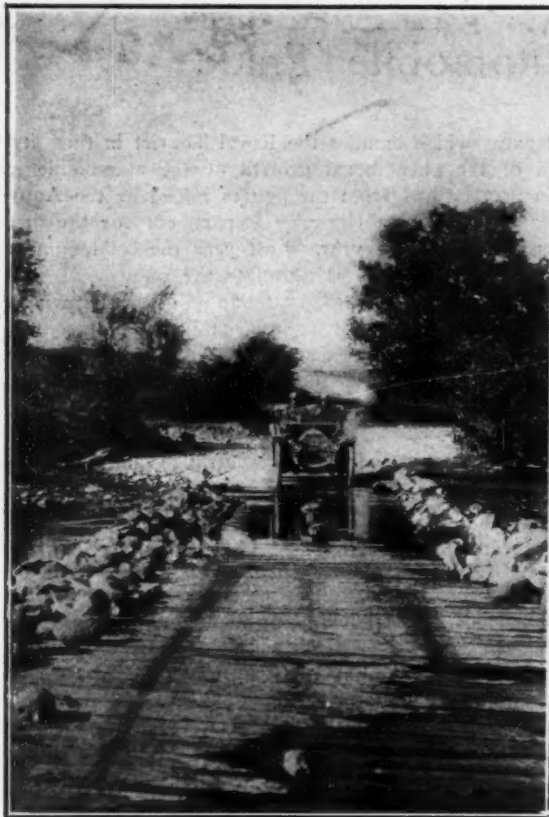
Trade Association Shows Growth

Four new members have been elected to the New York Automobile Trade Association. They are: Rothschild and Company, Fisk Rubber Company, Thedford Auto Garage, and the Correja Motor Car Company. The roster of the association now includes 75 concerns. The addition of numerous garage concerns to the association has led to the abandonment of the idea of the formation of an organization composed of garages exclusively. New quarters have been secured at 1777 Broadway.

Will Entertain Little Cripples

Wyckoff, Church & Partridge, New York representatives for Stearns cars, have planned to give an outing for the pupils of the Free Industrial School for Crippled Children, located in West Fifty-seventh street, Tuesday, May 17.

The trip will be to Coney Island, where the little ones will be given the privileges of the various attractions at Dreamland.

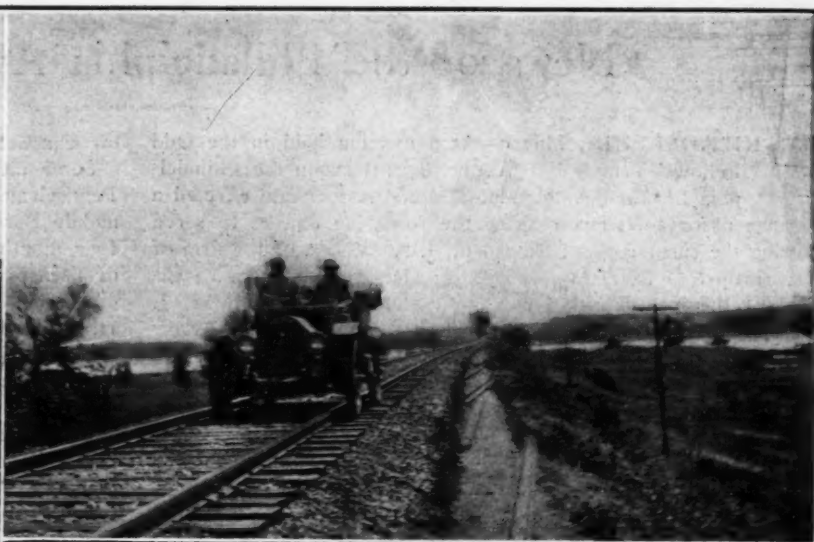


Pathfinder Crossing Madison Creek at Ford City, Okla.

THE 1910 Glidden Tour will be about 2,800 miles long, according to the latest estimates. The change in the route to include Omaha has added the extra mileage to the original plans. In another respect it will be an unusual event. The route of the fourteenth day of the run, which will be from Kansas City to Omaha, will be 242 miles long, the biggest ever essayed in a single day by the Glidden itinerants.

This day's run will be over Iowa roads, as the former intention of traversing the route to Omaha on the west side of the Missouri River has been found impracticable. In one way, the change has proved surprisingly favorable, for reports received from the pathfinding party show that three clubs have been formed in the rich Iowa bottom lands to be traversed by the tour. As a matter of fact the pathfinding has been very effective in stirring up interest in automobiling all along the way and at least a dozen automobile organizations have sprung into life while the scout and his party have been passing.

The territory included in the route of the tour this year amounts to about 1,000,000 square miles, in which over one-third of the population of the United States dwells. Nearly 200 in-



Sometimes Railroad Tracks Furnish Better Going Than the Highways

Iowa Farmers Royally Greet Pathfinder

corporated cities having a population of upward of 5,000,000 are touched by the map of the tour. The official map of the event as far as it has been determined up to Tuesday is as follows:

	Miles
1st Day—Cincinnati to Louisville.....	162
2nd Day—Louisville to Nashville.....	193
3rd Day—Nashville to Sheffield.....	119
4th Day—Sheffield to Memphis.....	161.7
5th Day—Sunday in Memphis.....	
6th Day—Memphis to Little Rock.....	207.7
7th Day—Little Rock to Texarkana.....	191.6
8th Day—Texarkana to Dallas.....	217.1
9th Day—Dallas to Lawton, Okla.....	200
10th Day—Lawton to Oklahoma City, Okla.....	145
11th Day—Oklahoma City to Wichita.....	216
12th Day—Sunday in Wichita.....	
13th Day—Wichita to Kansas City.....	234
14th Day—Kansas City to Omaha.....	242
15th Day—Omaha to Des Moines, Iowa.....	160
16th Day—Des Moines to Davenport, Iowa.....	190
17th Day—Davenport to Chicago.....	200

DES MOINES, IA., May 11—Almost like a triumphal procession of royalty was the progress yesterday of the Glidden 1910 Pathfinding Chalmers car from Omaha to this city. The roads were in almost perfect condition, having been worked over with split-log drags just prior to the passage of the official party, and as this section of Iowa is one of the richest and most prosperous agricultural sections of the land, where the automobile is the valued possession of a big percentage of the farmers, the visit of the pathfinders is appreciated and prized in extraordinary degree.

The route from Omaha to Des Moines is 159 miles and will constitute a day's run of the tour proper. The rest of the distance across the State to Rock Island is also in perfect shape.



South Leg of Elgin Road Race Course Makes Fine Going



Turn on Elgin Race Course, at Udina Corner



Chalmers Pathfinder in Front of Lee Hucklin's Hotel, Oklahoma City, Okla.

Carnival to Open New Elgin Course

CHICAGO, May 9—Inside the next week it is expected the Chicago Motor Club will make application to the A. A. A. for a sanction for a road race carnival to be run this Fall at Elgin, Ill., 38 miles from this city. It looks now as if it would be a two-day meet with a small-car event for an opener and the big race on the second day. Negotiations with this end in view have been in progress for some time, and matters were brought to a focus last night when the citizens of Elgin decided to form the Elgin Automobile Road Race Association and to incorporate under the laws of Illinois with a capitalization of \$20,000.

This means that Elgin will finance the races and that the Chicago Motor Club will organize and run the contests. All that remains to complete the deal is the formal meeting of the two organizations when the agreement will be drawn up and signed by both parties.

Considerable preliminary work has been done already. A committee of Elgin citizens has visited the owners of property surrounding the course and has secured the written consent of three-fourths of the thirty-eight property owners, while the remainder have given verbal promises to permit the use of the roads for racing purposes. This deal is unique in motoring annals, in that the farmers are partners in the enterprise, the Elgin association which is financing the deal having agreed to give each farmer 33 1-3 per cent of the sale of tickets for viewpoints on his premises.

The course the promoters have in mind is regarded almost ideal for racing purposes. In shape it is an irregular pentagon with two long strips of about equal distance, a connecting one mile



Pathfinder Car in the Wqods, De Kalb, Tex.

strip at its western end and a short stretch on the east which almost makes it a hairpin at that end. The surface of the road is stone the entire distance around and there is only one place where there is any suggestion of a grade.

As it stands now the roadbed is 14 feet wide and almost a boulevard in smoothness, but in addition to this there is 1 foot on each side of the visible roadbed that is of the same stone formation, but covered by grass. In addition to this there is a side dirt road with no appreciable drop from the main highway.

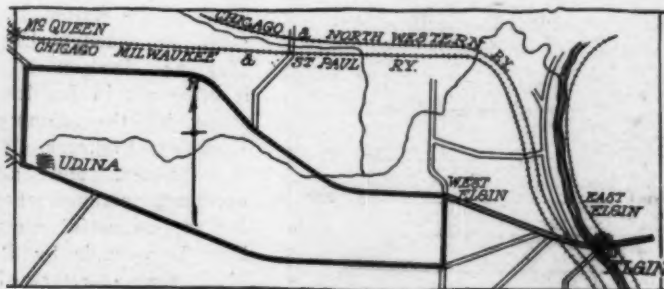
There are three bridges on the course. One is of stone and iron; about one-third of the way down the north leg it is 28 feet in width. The other two are wooden bridges and as wide as the road itself. Outside of the four turns, each of which is a four corners, there is not a highway crossing the course, and but two roads lead into it, one on the north leg and the other on the south. Probably sixty buildings are scattered around the circuit representing thirty-eight property owners. The course is 8.4 miles around.

At present the circuit needs some attention, although not very much. There is some loose gravel on the road which must be removed, and the south leg is dippy. However, an expenditure of \$8,000 or \$10,000 for scraping and oiling should make the course one of the fastest, if not the fastest, in the country.

In the map below, the actual layout of the course may be seen, as well as the straightaways and the nearness to cities.



Chance for Speed on Elgin Course, After Rounding the Hairpin



Map of Elgin Circuit, Which Chicago Motor Club Will Use

Willys Overland "Thirty" To Be Tested Out

FROM New York to the "coast," by a route which will cover upwards of 3,500 miles, is the distance which a regular stock Overland "thirty" will have to make, and what is equally to the point, the car is to be driven for the whole distance by a woman, Miss Blanche Scott, who hails from Rochester, New York. The idea of the Willys-Overland Company, of Toledo, O., is to furnish an object lesson to the women of America; a lesson in fact that will answer for all time. There have been various kinds of tours from coast to coast, but they were handled on a basis such as lent the impression that it was a very grave undertaking, and special cars were frequently used for the work. Then, the drivers were heralded as "dare devils," ready for a fight or a frolic as the weather might seem to indicate.

The belief is that a well made car may be piloted from coast to coast with about the same facility that it may be driven from New York City to Buffalo, Boston or Philadelphia, excepting that the distance is enough to try out the staying qualities of the automobile, and it is admitted that some of the roads will be hilly, soft in places, and capable of taxing the power plant of a good automobile. This is not a matter which should be viewed with great alarm by the maker of any automobile which may be regarded as abreast of the times, but the run will serve as a proof of the pudding, so to speak. It will also tell the ladies that the time has arrived in the world of automobiles when they need have no fears or qualms.

For the most part the route will be in accord with the "surveys" as made by the topographical engineers who did the work for THE AUTOMOBILE BLUE BOOK and in a general way as follows: Starting from New York, north along the Hudson river to Albany, thence west, touching Syracuse, Rochester, Buffalo, Cleveland, Toledo, Chicago, Milwaukee, Cedar Rapids, Des Moines, Council Bluffs, Omaha, Hastings, Julesburg, Denver, Cheyenne, Laramie, Rawlins, Rock Springs, Granger, Ogden, Tonopah, Goldfield, Beatty, Kelly's Well, Cajou, Los Angeles and San Francisco.

From New York to Ogden the route follows beaten paths, but west of the Great Salt Lake the car will traverse a desert that will test its quality. The southwest trip through Nevada will undoubtedly prove interesting enough and even in the present advanced stage of motor construction it would furnish a test which will have to be regarded as up to the most strenuous requirement from the stock car point of view. It will be remembered that the Model 38 Overland sells for \$1,000; this is an interesting phase of the problem; it emphasizes the advance which has been made in automobile construction in the last few years, and, in all truth, were it not for this angle, together with the fact that a woman is to make the trip, the undertaking would have little or no interest for autoists. This, however, makes a vast deal of difference, showing as it does indirectly, the simplicity of control of the machine in question.

Herald-Journal Pathfinder Starts

In a big Columbia touring car, the pathfinding party of the New York *Herald-Atlanta Journal* road tour scheduled for next month, started from Herald Square Saturday. The party consists of James Rolfe, driver; L. M. Bradley of the United States Motor Company; a representative of the *Herald* and N. Lazarnick, official photographer.

A big crowd gave the pathfinders a send-off on their long trip. The run to Philadelphia was without special incident, but

some bad roads were encountered this side of Gettysburg. Reports from the roads ahead are all more or less favorable and a splendid trip is predicted for the party. Much interest has been aroused through the South.



Special Speedway Trophy, Atlanta

K. C. Hill Climb

KANSAS CITY, Mo., May 9—There are 22 entries in the annual hill climb of the Automobile Club of Kansas City May 14. Dodson Hill is being put in faultless shape by the County Highway Engineer, R. T. Proctor, and all necessary arrangements for a successful meet have been made by P. M. Stevens, secretary of the club and representatives of the A. A. A.

A. A. A. Rules Govern Norristown Run

White-winged peace has settled down upon the tentative battle ground of the Norristown Automobile Club and the Contest Board of the A. A. A. When the rules for the coming reliability run of the Norristown club to Scranton and return were framed, the club injected several innovations to fit local conditions that were at variance with the road tour rules of the national organization.

One of these was a change in the classification of the cars entered of about \$100 in each class and another rule provided for the entry of toy tonneaus in the touring car class, while another required a brake test backward on a ten per cent grade.

These rules were all promptly blue-penciled by Chairman Butler and red war was threatened on the part of the club. But chief among the demands of the Norristown organization was a rule to prevent scorching between controls and in that respect the club was successful in gaining recognition. At one time the direct ultimatum was delivered by the club that it would run its tour without sanction unless its rules were confirmed, but the diplomatic appeal of Chairman Butler to the sportsmanship of the club turned the tide in favor of peace.

A. L. A. M. Threshing Out Tire Problem

One of the largest meetings of the board of managers of the A. L. A. M. ever held, assembled Wednesday at the headquarters of the organization to consider the problem of tires for the 1911 output. The present level of rubber prices and the impossibility of tire makers to buy at current rates and supply their product to the automobile manufacturers at the figures of last year, were two of the subjects discussed at the meeting. The rubber corner was thoroughly treated from every viewpoint and its causes and probable effects were considered.

The Detroit contingent arrived in New York Tuesday morning and a series of conferences, held at various hotels, tended to promote an understanding between the manufacturers before the meeting was called.

Atlanta's Epochal Spring Meet Ends

(Continued from page 871.)

THERE were a number of accidents on the opening day, but not any on the later days, with the exception of some minor changes in the way of substituting one engine for the power plant of another car, both of the same make, etc.

Event 7—Two hundred mile-stock chassis, 301-450 cubic inches:—

	10-m.	20-m.	30-m.	40-m.	50-m.	60-m.	70-m.
Marmon, Harroun ..	8:46	17:02	25:27	33:47	42:04	50:36	59:48:00
S. P. O., Strang.....						62:17	81:53:00
National, Aitken ...	8:20	16:25	24:28	32:29	out		
Knox, Cluquot	8:46	17:02	25:30	37:14	43:42	out	

MAY 7.

Event 1—Ten-mile free-for-all:—

	2-mile	4-mile	6-mile	8-mile	10-mile
Fiat	1:36	3:04	4:34	6:05	7:39:4
American	1:44	3:14	4:44	6:13	7:43:46
National	1:49	3:26	5:03	6:41	8:19:65

Event 3—Two hundred-mile stock chassis, 451-600 cubic inches:—

	10-mile	20-mile	30-mile	40-mile	50-mile	60-mile	70-mile	80-mile	90-mile	100-mile
National	8:34.4	16:53.92	25:19.77	33:50.26	42:21.73	50:49.27	59:18.45	67:48.85	76:10.45	86:19.59
American	8:33.5	16:52.41	25:13.01	33:41.67	42:21.72	50:37.22	58:51.74	66:42.71	74:50.30	82:55.40
Fiat	8:58.6	17:33.58	26:15.11	34:31.72	42:43.53	50:49.27	59:44.63	67:44.22	77:23.35	89:22.30
Marmon	9:13.32	18:00.26	26:50.62	35:39.84	44:36.12	51:14.50	59:56.73	67:43.86	77:31.05	86:22.12
National	9:23.5	18:14.92	27:09.39	36:05.65	47:24.57	56:37.95	66:02.65	75:12.76	84:22.24	93:02.06
A. K.....	9:32.4	18:26.41	27:10.82	35:56.32	51:02.30	60:19.15	69:04.70	78:09.52	87:00.40	96:03.05

	110-mile	120-mile	130-mile	140-mile	150-mile	160-mile	170-mile	180-mile	190-mile	200-mile
National	94:47.9	103:50.35	114:16.53	124:44.16	135:13.34	144:51.08	154:43.55	164:05.94	173:13.89	182:24.21
American	96:29.07	106:51.83	119:57.84	129:54.6	139:17.89	148:34.75	158:05.04	166:56.07	175:18.40	185:10.25
Fiat	102:15.58	112:07.34	123:06.63	136:46.57	146:00.00	155:50.4	168:20.07	177:45.25	186:56.65	198:11.53
Marmon	105:48.56	116:26.00	128:57.26	141:17.29	153:25.09	164:42.07	176:24.35	187:97.74	Running	Running
National	111:58.43	123:21.00	135:40.81	146:48.8	157:59.3	171:26.58	182:35.05	192:17.21	Running	Running
A. K.....	139:22.7	144:44.08	154:55.15	167:31.7	177:07.72	186:26.98	196:55.52	Running	Running	Running

Event 6—Fifty-mile free-for-all:—

American, Lytle.....	7:53	15:37	23:09	32:22	40:20:02
National, Kincaid.....	8:16	16:21	24:20	32:21	40:21:27
Marmon, Dawson.....	9:03	19:31	28:36	38:51	*
Fiat 90, De Palma.....	10:49	19:59	30:20	39:48	**
Marmon Six, Harroun.....	7:56	15:39	26:58	***	***

*Finished 46 miles, 43:59:18. **Stopped. ***Stopped.

	80-m.	100-m.	120-m.	140-m.	160-m.	180-m.	200-m.
69:09:00	87:26:00	106:34:00	125:43:00	144:30:00	163:22:00	182:31:24	
91:24:00	118:30:00	137:50:00	160:50:00	183:31:99	Still run'g	at finish	

National went out with broken steering knuckle.
Knox went out. Motor ran out of oil and broke crankcase.

Event 2—Twelve-mile stock chassis, 161-230.

E.-M.-F.	2:19	4:39	6:50	9:00	11:11	13:22:6
Cole	2:18	4:39	6:50	9:00	11:11	13:21:95
Firestone.....	2:28	5:41	stopped.			

Three-Day Minnesota Tour

The second annual reliability run of the Minnesota State Automobile Association will go this year to Aberdeen, S. D., and the pathfinder, a five-passenger E-M-F car will start out over the route May 9.

Dr. C. E. Dutton, of Minneapolis, chairman of the contest committee, will go with the car. The main trophy, that offered by the St. Paul Dispatch, is now in possession of the Minneapolis club and will be competed for again this year.

Last year the total entry was seventeen contestant and half a dozen non-contestant cars, while local cars along the route to Fargo and return joined in. Governor Eberhart may enter the run.

Club May Use Indianapolis Speedway

INDIANAPOLIS, May 9—An automobile club is being organized in Indianapolis by private owners, dealers and manufacturers, and an effort is being made to obtain 1,000 charter members at a membership fee of \$15. Carl G. Fisher, president of the Indianapolis Motor Speedway Company, has agreed to build a club house at the Speedway grounds and to allow members access to the Speedway course for pleasure driving. The club will be separate from the association organized recently which affiliated with the American Automobile Association. The committee on organization is composed of F. I. Willis, A. R. Kling, T. E. Hibben, Frank Staley and Charles A. Bookwalter.

Many Cars for Orphans' Day

Responses came promptly in answer to the appeals and entry blanks sent out for cars for the Orphans' Automobile Day. E. Lascris, manager of the De Dion Bouton Selling Branch, made the first entry of two cars, this being followed by two National touring cars by the Poertner Motor Car Co. The Maxwell-Briscoe Co. offered 20 cars and one Grabowsky truck, which will carry 60 children. This was followed by an offer from Manager George W. Bennett, of the White Co., for two big White gasoline trucks accommodating 80 children.

1910 Touring Information for Automobilists

(Continued from Page 877.)

The surveys are much more complete, comprehensive, the style is brief and terse. The type is large and clear, so that it will be possible to open the book while riding in a car, turn to the part which gives the information desired, and readily read the instructions and directions, even under conditions of great disadvantage. This particular book also includes routes in the Provinces of Quebec and New Brunswick, and directions for getting in and out of New York are also given their proper spacing.

There is one other point, the consolidation of the Red Book with the Blue Book adds materially to the comprehensiveness of the latter, in that it includes all worthy information which formerly obtained in the Red Book proper. The Official Automobile Blue Book is published by The Automobile Blue Book Publishing Company, 239 West 39th street, New York City.

Medals for Drivers

CHICAGO, May 2—Following up its offer of the Chicago trophy for the roadster division of the Glidden tour, the Chicago M. C. has decided on another innovation—a gold medal to the winning driver.



Trophy for 200-Mile Event, Atlanta

AMONG THE GARAGES



Regal Plugger, which is making a tour of the principal cities of the country, stopping to ask road directions

William G. Grieb, new president of the Ajax-Grieb Rubber Company, Trenton, N. J.

Haney-Pistor Co., of Kewaunee, Wis., is building a large public garage, the first in Kewaunee.

A two-story garage and office building is being erected at Fond du Lac, Wis., by J. L. Remington and R. H. Lee.

An electric automobile garage has been opened at 2174 East Ninth street, Cleveland, by Clarence A. Downey.

Park Automobile Company, of Johnstown, Pa., has opened its new garage on Locust street. Floor space for fifty cars has been provided.

The Russell Garage at Berlin, Wis., was almost totally destroyed by fire on May 5. Several other adjoining buildings were badly damaged.

P. J. Needham, agent for the Columbia and Maxwell at Scranton, Pa., is about ready to move into his new garage in Wyoming avenue.

Dusseau Motor Car Company, of Toledo, O., was incorporated with a capital stock of \$30,000 to conduct a sales agency and garage in Toledo.

L. De Stwolinski, manager of the Central Garage of Fort Scott, Kan., announces that his concern will occupy one of the new buildings at First street and Scott avenue next week.

Quarters for the Auto Sales Company's garage at Lynchburg, Va., will be located on Main street and will be ready for occupancy this month. The garage can take care of twenty-five cars.

Florida Automobile and Gas Engine Company, of Tampa, is building a garage 70 by 90 feet, two stories high. The cost will be \$16,000 and the structure will contain many modern improvements.

G. W. Worthing, formerly of the Worthing-Clark Automobile Co., at Fond du Lac, Wis., has established a new garage at 22 East Second street. He has been appointed district agent for the Overland,

The new Curtis Garage, erected for the Curtis Auto Co., Milwaukee agents for the Reo, Corbin and Hupmobile, is about ready for occupancy. It is located on Eighth street, just south of Grand avenue.

The Dominick Automobile Company, of Chicago, has been incorporated with a capital stock of \$10,000. The company will engage in the automobile business and conduct a general repair and machine shop.

The Pittsburg Automobile Academy has established a general repair shop and garage at 5811 Penn avenue, East End, where it is now overhauling from six to a dozen cars a day for the benefit of its students.

Duluth will have a \$50,000 garage in June. The building is almost completed. It is located back of the Board of Trade and is owned by E. J. Filiatrault. It will be two stories and of the most substantial concrete construction.

Manager Harry A. Bell, of the Metropolitan Motor Car Company, Spokane, reports the completion of his new garage. The building is of brick, two stories high, with an approximate floor space of 15,000 square feet. This firm handles the Premier, Pullman and Lozier cars.

Mathias R. Kondolf has lately secured the agency of the National car for Rochester, N. Y., and vicinity, and intends to occupy a large garage at Monroe avenue bridge, in the near future. This garage is 71 ft. front on Monroe avenue, and runs back 115 ft.; three stories high, of steel and concrete construction and fireproof.

The Metropolitan Garage, which will be located in the quarters formerly occupied by the Roberts Motor Company, of Jacksonville, Fla., will handle the Gramm truck throughout Florida. The remodeled building will be ready for occupancy in the near future. W. F. Alley is in charge.

Standard Automobile Company, Cleveland agents for the Packard, and the Ohio sales branch of the Baker Motor

Vehicle Company have just occupied the largest salesrooms and garages in Cleveland. The structure is located at Euclid avenue and East Seventy-first street. The building is of brick and stone construction and has a frontage of 160 feet on Euclid avenue and 200 on East Seventy-first street. The Baker department is capable of charging sixty cars at one time.

W. P. Crowley and A. H. Grindle, of San Francisco, are erecting a garage and will open for business July 1. The building will be a two-story brick, 82 ft. 6 in. by 137 ft. 6 in., costing \$16,000, with basement the same size, for dead storage, lockers and machine shop. On the main floor there will be three large show windows for rent, and, with the exception of the office and store room, the rest of the floor will be devoted to live storage. The second story extends back only about one-third of the length of the building, and will be used exclusively as a lounging room for the chauffeurs.

The Buick Auto Supply and Garage Company has purchased a site on North Grand Boulevard, Detroit, and plans are being prepared for what will be one of the largest garages in the country. The property has a frontage of 245 feet and a depth of 150 feet, and the structure will cover the entire lot. The building will have an area of 36,750 feet, the front portion, 50 feet deep, being two stories in height. Back of this will come the garage proper, one story in height, 100 by 245 feet, and entirely free from posts. A complete machine and repair shop will be maintained, and it is the intention to have machines from all over the State sent here for overhauling and repairs. The Detroit garage will be the first of a string of forty it is proposed to establish throughout the State, and will be operated by the Michigan Buick Auto Supply & Garage Company. Despite the similarity of names, there is no connection between this concern and the Buick Motor Company, of Flint.

WITH THE AGENCIES



Hudson car which made 500 mile non-stop run in far away Hawaiian Islands, averaging nearly 19 miles per gallon

A. S. Lanich, of Baraboo, Wis., is a new agent for the Halladay in Western Wisconsin.

T. G. Coburn and E. B. Dennie, Newport News, Va., have become agents for the Studebaker, E-M-F and Flanders cars.

H. J. Smith, of Ravenna, O., has been appointed Regal agent by J. C. Hipp, manager of the Regal Motor Sales Company, Cleveland.

The Duquesne Motor Company has secured the Greater Pittsburgh agency for the Auburn car. It is also handling the Sebring car this year.

H. Heller, of Youngstown, O., has been chosen agent for the Clark and Empire cars by the Vail Motor Sales Company, of Cleveland.

Seamless Rubber Company, New Haven, Conn., opened a Boston salesroom at 685 Boylston street for the sale of the Bragg stitched tire and the Kantleak inner tubes.

The LeGrand Automobile Company, of Wilkesbarre, Pa., has taken on the agency of the Cole "30" for Luzerne, Columbia, Lackawanna and Carbon counties.

G. E. & H. J. Habich Company have taken the agency for the Cole "30" for New England and have opened a temporary salesroom at 185 Summer street, Boston.

Delaware Automobile Company, of Delaware, Ohio, of which Joseph Neville is general manager, has taken the agency for the Buick, and E-M-F lines for Delaware County.

Standard Tire Traction Company, manufacturers of Standard Chain Grips, opened salesrooms at 399 Boylston street, Boston. M. A. Kennedy is general manager.

The Columbus branch of the Studebaker company, of which A. J. Pray is manager, has been extended to include all

of Southern Ohio, a part of West Virginia and Northern Kentucky.

The Gehl Bros. Manufacturing Company, of West Bend, Wis., has taken the agency for the International line. Each of the company's traveling men will be equipped with an International.

The Acme Auto Car Company, of Covington, Ky., has secured a floor space of 12,000 feet on one floor. The concern has the agency of the Badger and Clark cars. L. H. Sackett is manager.

The B. F. Goodrich Rubber Company opened new salesrooms in Cleveland last Saturday. A complete repair department and a full line of tires is on display. The new quarters are fitted up luxuriously.

F. C. Wiswell, of Elkhorn, Wis., is a new Studebaker agent in the south central Wisconsin territory. Mr. Wiswell will open a garage on May 15. Hugh Squires will have charge of the repair department.

J. Ernest Quimby has joined the Boston sales force of the E. R. Thomas Motor Company. Percy Musson has been appointed assistant superintendent of the service department of the same Thomas agency.

H. S. Moore, one of the oldest automobile dealers in Cleveland, has taken over the agency of the Overland line for Northern Ohio. He will have an allotment of 200 cars and will open a branch office on the west side of the city.

Commercial Auto Sales Company has been organized and located in salesrooms at 2158 East Ninth street, Cleveland. Chase delivery wagons and Gramm-Logan trucks will be distributed. J. A. Boyd has been chosen local manager.

H. H. MacDonald, C. T. Schaefer and J. E. Ellison, formerly in the St. Louis Car Company automobile department, are now connected with the Embree-McLean Carriage Company, of St. Louis, in making and selling the Embree-McLean "35."

G. C. MacCullough, new appointee as manager of Penna. Rubber Co.'s N. Y. branch.

Personal Trade Mention

Z. B. Leonard, of South Bend, Ind., will have charge of the Perfection Spring sales in the Middle West.

The Gasoline Motor Efficiency Company, of Jersey City, manufacturers of the Homo, has secured the services of Jacob Hoffman as superintendent.

W. Owen Thomas will be identified henceforth with the Fal Motor Company as consulting engineer, according to an announcement made recently by that company.

A. R. Brown, formerly with the Interstate Sales Co., has returned to the Atlanta Ford branch, with which he was connected before he went over to the Interstate forces.

P. S. Steenstrup, former manager of the Hyatt Roller Bearing Company, has been appointed manager of the new branch of the Columbia Motor Car Company at Seattle.

Earl J. Moon, who was dangerously ill with diphtheria in Chicago, is convalescing at his home in Washington Terrace, St. Louis. He is still under the care of his physician.

George G. Dunham, president of the Royal Tourist Car Company, spent the week at the New York branch. Several new salesmen will be added to the sales force of the metropolis.

Roy Thomas, former centerfielder of the Philadelphia and Boston National League clubs, has signed with Manager W. F. Smith, of the Maxwell-Briscoe Company, of Philadelphia, in the capacity of salesman.

W. T. Helfer, formerly branch manager of the Diamond Rubber Company, Boston, Mass., and recently sales manager of the Springfield Metal Body Company, Springfield, Mass., has severed his connection with the latter concern to join the Racine Mfg. Co., of Racine, Wis., in which he has taken an interest.

REALM OF THE MAKERS



Party of 75 St. Louis automobilists lined up on the principal street of Stuttgart, Ark., upon occasion of a recent trip there

Richard Bacon, Jr., latest addition to sales force of Hudson Motor Co., Detroit

The Pullman Motor Car Company increased its capitalization April 30 from \$100,000 to \$500,000.

Oscar Lear Automobile Company, of Springfield, O., increased its authorized capital from \$100,000 to \$500,000. The increase was made to permit enlargements.

Columbus Buggy Company, manufacturer of the Columbus-Electric and the Firestone-Columbus, is now engaged in preparing models for the 1911 season.

The Nickel Manufacturing Company, of Pontiac, Ill., has placed on the market a five and a half pound automobile pump, standing ten inches high. The pump is operated by the engine.

Stewart & Clark Mfg. Co. is enlarging its factory plant at Chicago with an addition 110 by 125 feet. The building will be two stories and basement and is expected to be completed by July 4. The concern makes speedometers.

Factory Auto Supply Company was capitalized with a capital stock of \$10,000. The company will be located in Chicago, and will deal in automobiles, motorcycles, accessories and supplies. The incorporators are George W. Stephens, William A. Conover and Spencer Wood.

The Universal Tire Protector Company, Angola, Ind., has been reorganized with a capital stock of \$30,000 fully paid, the officers being S. C. Wolfe, president; E. S. Croxton, vice-president; J. R. Nyce, secretary and W. W. Love, treasurer. Mr. Croxton is vice-president of the First National Bank of Angola.

After two years absence from the track, Montague Roberts, it is announced will drive the Houppt-Rockwell entry during the 24-hour race which will be held at Brighton Beach, May 13-14. Mr. Roberts has had much to do with the designing of the car he will drive. Stanley Martin will be with Mr. Roberts.

The Brown Auto Carriage Company,

of Cleveland, builders of automobile bodies, moved to a new factory May 1. The new plant has a floor area of 40,000 square feet, and gives this company one of the largest body factories in the country. Tops, windshields and upholstery work are side lines of this concern.

The Temperin Company was incorporated in Illinois by Secretary of State James A. Rose, with a capital of \$5,000. The company will locate offices in Springfield, Ill., and will manufacture Temperin, a product for tempering and saving the temper of steel tools. The product was invented by Justis Moore.

The Overland Automobile Company states that it purchased material for 20,000 cars for 1910, that the material is in hand, and that the production will be nearer to 25,000 than to 15,000 which was scheduled on page 683 of THE AUTOMOBILE, April 7 issue. Overland shipments for March were 2,300 cars; April will reach 3,000.

The Detroit Carbureter Company has been organized with Byron Robbins as president, E. M. Broderick, vice-president and general manager, Dr. H. S. Kiskadden, secretary and Newton Annis, treasurer. Within a month the new company, which has established offices at 239 Jefferson avenue, Detroit, will be turning out 200 carbureters.

The New Departure Manufacturing Company, of Bristol, Conn., is making additions to the big plant, which will afford an increase in floor space of 32,000 square feet. The foundations have also been laid for additional gas-engine equipment. Gas engines have been used by the company for power purposes for some time with good results.

W. T. Ensign, of La Crosse, Wis., has perfected a pistonless gas engine for use in motor cars, boats, cycles and stationary work. The engine is said to utilize the power created by the combustion of two gases, is a great fuel saver and may be geared to tremendous speed. Two La Crosse engine builders are negotiating

for the purchase of the rights to manufacture the motor.

Barndt and Johnston Auto Supply Company which has been located on Donaldson street since its organization in 1905, has been moved to South Columbus, where it will occupy the plant formerly used by the Columbus Woodworking Company. In all 45,000 square feet is contained in the new plant. The company makes bodies and accessories.

Charles T. Jeffery has assumed complete control of the manufacture and sale of the Rambler, manufactured by Thomas B. Jeffery & Co., at Kenosha, Wis., according to official announcement. Mr. Jeffery was for sixteen years a partner with his father in the big concern, and is widely known in the trade. The business of the company will continue without change in policy.

The Canton Buggy Company, Canton, Ohio, is making a new delivery wagon, and it is expected that this company will go into the production of its type of delivery wagon on a considerable scale. The idea is to take advantage of the present state of the art, produce a wagon of the greatest possible utility from the point of view of radius of action, low cost per ton mile of the goods transported, with a particular eye to the future, considering depreciation.

An addition to the Moon Motor Car Company factory is now being built for the accommodation of the increased number of cars in the testing stage. The test cars, while undergoing their road test preparatory to the 100-mile perfect score run, which each must take before it is sent to the paint shop, will be housed in the new department, to be known as the test-car garage. The garage will be large enough to accommodate thirty to forty cars. It is being built in the quadrangle formed by the three wings of the big plant and a high fence topped with barbed wire. The new department will be ready for occupancy in April.

NEWS IN GENERAL



Louis Strang in the Pierce-Racine car which he drove in the New Jersey reliability contest from New York to Atlantic City and return.



E. R. Hollander, vice-president Flat Automobile Company, New York City

Fisk Rubber Company has been installed in one of the most handsomely arranged houses in St. Louis at 3917 Olive street.

The Monarch Auto Top and Supply Company, with offices in Chicago, has certified to an increase of capital stock from \$2,500 to \$20,000.

The Benoist-Buel Company has succeeded to the management of the Benoist Bros. Manufacturing Company, of St. Louis, and in a short time will move to 3923 Olive street.

R. A. Palmer has been elected president of the newly formed Commercial Club of Pontiac, Mich. Mr. Palmer is secretary and general manager of the Cartercar company.

Over 560 automobile horns made by the Gabriel Horn Mfg. Co., of Cleveland, were lost in the wreck of the steamship "Minnetonka" off the British coast. The horns were part of the jet-tisoned cargo.

The Thirty-eighth annual convention of the Carriage Builders' National Association will be held in Cincinnati, O., during the week commencing September 25, 1910. The exhibition will be from September 26 to 30, inclusive. The convention will be September 27, 28 and 29.

The United States Light & Heating Company, general offices at 30 Church street, New York, announce the removal of the Chicago office, May 1, from 745 Monadnock Building, to 1013 People's Gas Building, Michigan avenue and Adams street.

D. Rees Davis has taken over the Houseman-Blake Automobile Company, and in future the firm will be known as the Davis-Blake Automobile Company. The new company will handle the Springfield car and its offices will be at 5037 Delmar boulevard.

The Emergency Repair & Call Company has begun business at 2801 Clark avenue, Cleveland, with C. H. Vottele as manager. The company will remain

open day and night and will make a specialty of calling for and repairing cars in any part of the county. A motor wreck train equipped with mechanics is subject to calls days and night.

E. D. Layman, manager of the Chicago Road and Realty Company, which is projecting "The Great White Way" between Chicago and Milwaukee, says that the company has begun to acquire title to lands on the proposed route. The highway will be 76 miles long, with a 66-foot highway for motor traffic and two 20-foot public roads flanking it. The center division for street railway traffic will be eliminated.

The Clark Motor Company, capitalized at \$50,000, to manufacture and deal in motor cars and to carry passengers, has been incorporated in Buffalo. The directors are Stanley B. De Long, John W. Van Allen and Henry J. Rente. Incorporation papers were also filed in Buffalo by the Regal Auto Company, with a capital of \$10,000, with Clarence E. Hancock, Wilfred W. Porter, Jr., Myron S. Melvin, Robert G. Boyd and Harry D. Van Brunt, all of Syracuse, as the directors.

Pittsburgh automobile firms are studying the matter of outdoor motor carnivals. They believe that more real good can be accomplished in a sales way through these outdoor carnivals than through the winter indoor meetings. It has been found that in general prospective buyers take much more interest in seeing the cars in motion than they do in a long continued study of them under electric lights, and arrangements are being made by leading companies in this city to put on one or more big summer carnivals this year.

George C. John, New York agent for the E-M-F and Flanders, has sold out to the Studebaker Company, the purchase being in pursuance of the latter company's policy of handling these cars, the manufacture of which it now controls, from its own branch offices. The deal was made last week at a meeting at the

Hotel Belmont in New York, between Mr. John and Walter E. Flanders and Clement Studebaker, representing the Studebaker Company. It is said the price received by Mr. John will practically cover his season's profits, and that as an evidence of good will he will this summer drive a handsome Studebaker-Garford car.

Gibney & Bro. Invade New York

The announcement is made that the well-known Philadelphia house of James L. Gibney & Brother is going to invade New York with a tire and accessory store at 248-52 W. Fifty-fourth street.

James L. and John L. Gibney opened a bicycle-tire repairing establishment in a back room at 1015 Arch street, Philadelphia. They soon outgrew their quarters and in the following year tripled their space and started the sale of bicycle tires and later in the year removed to still larger quarters at 916 Arch street where they took on agencies for pneumatic automobile and solid carriage tires. In 1902, they moved to 828 Arch street. Shortly after establishing themselves in this place they extended their scope by beginning the sale of solid motor tires.

In 1905 a location was secured at 211-13 N. Broad street, and accessories were added to the line.

In April of 1909 they erected a three-story building at 215-217 N. Broad street, where they carry one of the very largest stocks of auto tires and accessories in the country and also have exceptional facilities for repair work.

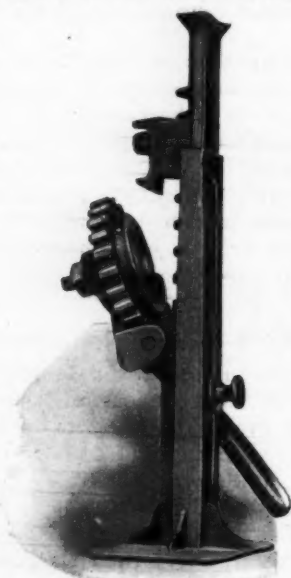
The Gibney firm developed the sale of the Fisk, Continental and Firestone tires in the Philadelphia field.

The establishing of the New York store, which will occupy the ground floor and basement of a large new building just off Broadway is the latest development in the upbuilding of this great business from an insignificant start.

Prominent Automobile Accessories

NEW JACK WITH QUICK ADJUSTMENT

The Ashland Manufacturing Company, Ashland, O., offers a new jack of which much interest is being taken by autoists. The illustration here given of this jack shows how simple it is, and it is claimed by the maker that the adjustment feature is of particular value, it being the case that the action is not only quick but positive. The Crown jack, as it is called, is made in the usual sizes, the materials employed are the best for the purpose. For a double-acting jack, considering the high character of the material and workmanship, the price is well within bounds, and



Ashland Jack Demounted

the rate at which these jacks are being made and shipped speaks well for the enterprise of the firm making them. The

cut elsewhere on this page shows the jack partly dissembled, this act of taking it apart showing better than could any other the actual construction. As is to be seen from the cut, there is a large toothed wheel on the end of the operating lever. This gear and lever are finished and inspected with unusual care, in order to make the jack one that can always be depended upon.

THREE IN ONE OIL FOR MAGNETOS

The well-known lubricating oil, which is sold everywhere under the brand name "Three in One," has recently attracted the notice of the automobile fraternity as a lubricant to be used in magnetos, and the Three in One Oil Company, 42 Broadway, New York City, claims for this oil that it will serve extremely well for this important purpose, its advantages being set forth as (a) it may be obtained even in the remotest districts in country general stores, as well as in the large distributing centers; (b) it has exactly the right consistency for use in delicate bearings, and will prove efficacious in magneto work on this account; (c) the oil will not gum up, is free from deleterious admixtures, and has the especial virtue of coming in sealed packages, which serves as a guarantee.

EMERGENCY LOCKING DEVICE

Automobiles continue to be stolen and there are still many accidents which occur solely through someone, humorously inclined or otherwise, changing the positions of the operating levers so that a gear is engaged when the driver thinks that the lever is in the neutral position. This will now all be changed by the use of a new emergency lock, known as the Star

Auto Lock, which has just been put on the market by the Star Auto Locks Company, 53 State street, Boston. The device is the acme of simplicity, consisting of a simple metal loop which may be placed over the operating handle in such a way as to prevent the working of the latch. In this way the lever may not be moved. The metal loop, as the cut shows, is locked in place with a padlock, the owner of the car carrying the key. The construction is so simple and the work of putting it on and taking it off so easily done that no time is added to the usual time of starting or stopping.



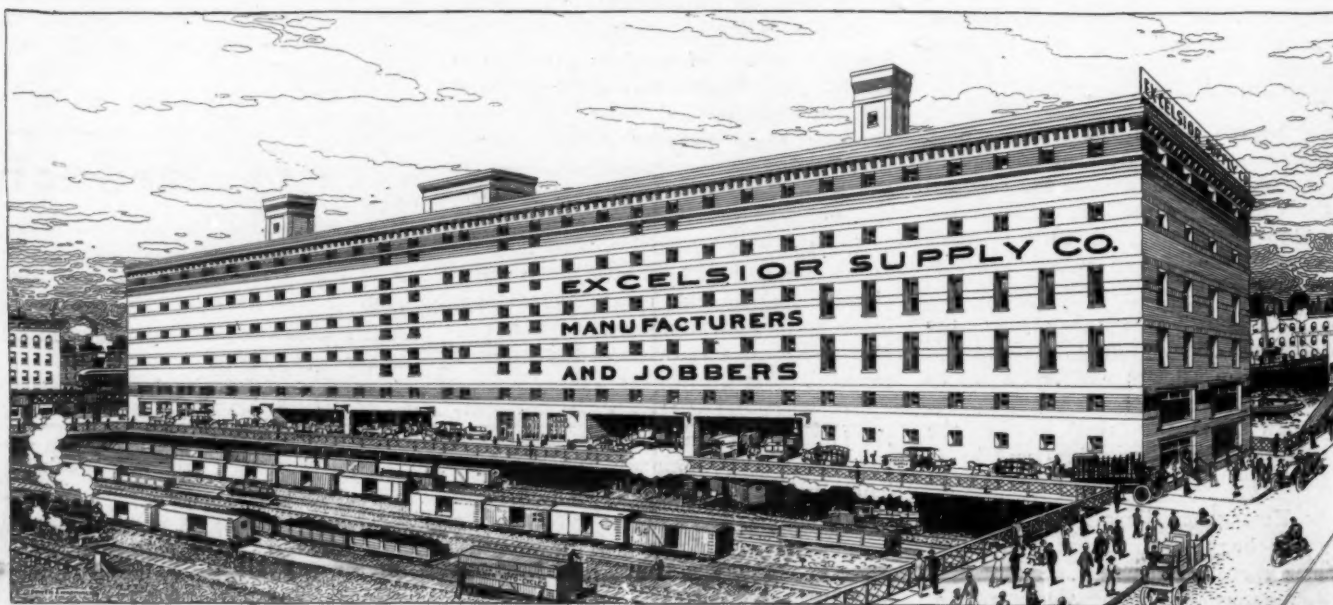
Star Auto Lock

RONSON AUTO INITIALS

Everyone has a certain pride in letting it be known that he or she, as the case may be, possesses an automobile. This pride of ownership which works out in the mass of names found in all public places, in an automobile takes the form of an ornamental letter or monogram of highly polished brass, which may be placed on the radiator front or elsewhere. The monogram shown is a specimen of the work done in this line by the Ronson Specialty Company, 7-15 Mulberry Street, Newark, N. J.



Ronson Monogram



Immense New Home of Excelsior Supply Company at Chicago, Where Everything in the Accessory Line is Carried